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THE ETIOLOGY AND PREVENTION OF HEART DISEASE.*

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Organic heart disease is now "Captain of the Men of Death." This grim leader advances steadily, equipped with an array of formidable and mysterious weapons. It is our present purpose to describe the nature of this deadly attack and to outline briefly the strength and weakness of the defense. For a battle of such magnitude it will appear that this defense has been courageously though somewhat imperfectly organized. This does not imply any criticism of our profession but rather a lack of special knowledge which must come with intensive investigation and the passage of time.

The importance of organic heart disease becomes manifest upon the consideration of mortality tables of the past ten years. For the U. S. Registration Area in 1919 the death rate from organic heart disease was 146 per 100,000 as compared with 211 per 100,000 in 1929. A more critical examination of the several age groups indicates, however, that the increasing mortality occurs in the latter decades almost entirely. Many writers have indicated that more young people survive the infectious diseases to die ultimately of cardiac disease. In addition to this increasing age of the population, more frequent diagnosis and consequent record has been made of the degenerative changes in heart muscle. Be this as it may, Dublin[8] has shown that one in every five persons, surviving the age of ten, eventually dies with heart disease. Aside from this impressive mortality rate there can be no doubt as to the importance of this largely unsolved problem. Unfortunately there are all too many instances when our friends and patients succumb prematurely to heart disease.

I. *Etiology.* Only in the past eighteen years has there been a concerted effort to collect data relative to the different cardiac types. The more mature members of this Society are well aware of the confusion in terms prior to 1914 and even 1921 and can appreciate what a renaissance the present etiological classification of heart disease represents when compared with the previous anatomical and structural nomenclature. There is no doubt that this change represents progress and that such blanket diagnoses as "myocarditis" and "mitral regurgitation" need no longer be thrown over a half-dozen divergent cardiac conditions.

White and others, gathering inspiration and courage from Cabot, have made valiant efforts to improve our understanding and place the etiological classificaton of heart disease on as sound a footing as present basic knowledge will allow. The roles of hypertension, arteriosclerosis, rheumatic infection, syphilis, thyrotoxicosis and other less major factors have become fairly well known. The recognition of the type of heart disease which one or several of these fundamental agents may produce is a knowledge which has been largely acquired through the correlation of clinical and pathological data, aided by rapid advancement in roentgenology and electrocardiography. The main criteria for a modern diagnosis of heart disease as to *etiology*, *structure* and *function* are now common knowledge and, while doctors may differ in special cases, there is a vast common basis for discussion.

From time to time this newer classification has been statistically applied so that now a number of carefully planned group studies are available for tabulation and comparison. As shown in Table I, different geographical sections have been represented and climatic influences may be noted. Each of the writers seems well aware of the difficulties attendant upon an accurate evaluation of such data and one or another has commented on unbalanced age groups, differences in social strata racial tendencies and other factors influencing their studies. Three[3-4-7] excellent discussions (Table II) from the South offer racial comparisons

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TABLE I

ETIOLOGICAL CLASSIFICATION 8,182 CASES ORGANIC HEART DISEASE
From Literature (1) (2) (3) (4) (5) (6) (7)

No. Cases	Section	Hyp.-Art.	Rhm.	Syp.	Thy.	Con.	S. B. E.	Mis.	Unk. Unc.	Ang.
300	Va	59.6	21.9	11.0	3.6	1.0	1.3*	.....	2.3	9.3*
323	New Eng	44.9	39.2	6.8	5.6	1.5	1.2*	1.5	.6	8.0*
2,421	New Eng	48.1	39.5	3.9	2.9	1.5	1.9‡	2.1	3.4	14.6*
915	Texas	61.4	7.3	19.3	1.3	.7	1.5	1.3	4.9	2.3
1,660	Texas	77.4	3.4	12.7	2.5	.7	.3*	1.0	2.3	.6*
1,051	N. Y. C.	22.2	42.7	8.6	.....	.....	.....	.....	8.6	17.8	†
867	Rocky Mts.	36.0	44.0	1.1	9.3	1.1	.2	.9	7.3	†
645	Tenn.	67.9	10.5	7.9	1.1	3.3	1.7	2.2	3.1	†

All group figures expressed in per cent.
Abbreviations: Hyp.-Art.—Hypertensive, Arteriosclerotic and combined Hypertensive and Arteriosclerotic; Rhm.—Rheumatic; Syp.—Syphilitic; Thy.—Thyrotoxic; Con.—Congenital; S. B. E.—Subacute Bacterial Endocarditis; Mis.—Miscellaneous; Unk.—Unknown; Unc.—Unclassified; Ang.—Angina Pectoris.
*Already included in other groups.
‡Partially included in other groups.
†Not stated for whole series.

TABLE II

COMPARISON OF ETIOLOGICAL TYPES OF ORGANIC HEART DISEASE IN 1,354 WHITES AND 1,866 NEGROES
(From Literature)

	Texas (4)		Texas (5)		Tenn. (7)		Average	
	W.	N.	W.	N.	W.	N.	W.	N.
†Hyp.-Art.	.....	.....	.....	.....	65.1	71.8	.....	.....
†Hyp	45.3	48.0	42.5	63.2	.....	.....	68.4	68.6
†Art.	19.8	6.3	35.8	13.6	.....	.....	.....	.....
Rhm.	10.4	3.6	7.5	1.7	15.1	4.3	11.0	3.2
Syp.	9.0	31.6	6.7	15.2	2.2	15.4	5.9	20.7
Thy.	1.4	1.2	2.8	2.3	1.1	1.1	1.7	1.5
Con.	1.2	.2	.6	.7	4.1	2.1	1.9	1.0
S. B. E.	1.8	1.2	.....	.....	2.7	.4	2.2	.8
Mis.	1.4	1.2	1.6	.6	2.7	1.4	1.9	1.0
Unk.	.....	.....	2.4	2.3	.....	.....	2.4	2.3
Unc.	5.6	4.1	.....	.....	3.8	2.1	3.1	2.0
Ang.	4.1	0	.6*	0	.....	.....	2.3	0

All group figures expressed in per cent.
Abbreviations as in Table I.
*Already included in other groups.
†Averaged as one group (hypertensive and arteriosclerotic) in final column.

and averages of these for the negro cases correspond fairly closely to another classification[9] including negro patients only.

Examination of Tables I and III indicates that the hypertensive and arteriosclerotic group incidence for the whole country varies from 22 to 77 per cent. This range is affected more by the relative occurrence of other groups than by race of geographical location. Furthermore, it seems fair to state that could this type of heart disease be eliminated, half of the problem of heart disease would be wiped out.

Rheumatic heart disease varies in frequency from 3 to 44 per cent, a variation brought about largely by climate and partially by race. The former influence has been and is being discussed at some length[10-11] while the latter racial tendency is less well established. It may be generally stated that another quarter of all the heart disease in this country would vanish with the disappearance of rheumatic infection, a consummation devoutly to be wished.

Syphilis, a treatable and preventable infection, causes a variable amount of heart disease, largely dependent on the racial division in a

given section. The problem of syphilitic heart disease for the country probably averages about 10 per cent of the whole (Table III).

TABLE III

SUMMARY
ETIOLOGY OF ORGANIC HEART DISEASE

TYPE	PER CENT	
	Variation	Average
Hyperten. and Arterio.	22–77	50
Rheumatic	3–44	24
Syphilitic	1–19	10
Thyrotoxic	1– 9	5
Congenital	1– 3	2
Miscellaneous	1– 9	5
Unclassified	2– 6	4

While it behooves the Southern branch of our profession to concentrate on the ravages of hypertension and arteriosclerosis, and syphilis in the negro particularly, relatively speaking, our New England physicians, for example, have a dramatic problem in rheumatic infection with hypertensive and arteriosclerotic types an almost equal consideration.

There seems to be little doubt that the basic factors of arteriosclerosis, hypertension, rheumatic infection and syphilis account for 85 per cent of all heart disease in our population.

II. *Prevention.* Burwell[7] has aptly stated the two phases of this discussion: (1) The control of basic conditions leading to heart disease, and, (2) the relief and prevention of heart failure.

(1). The etiology of organic heart disease has become somewhat clearer but its prevention in large part remains clouded. True enough, syphilis is quite amenable to control. The prevention and early treatment of lues would eliminate many cases of cardiac disease, but even so fanciful an accomplishment as the entire eradication of syphilis would solve only one-tenth of the problem. In spite of this unimpressive fraction, syphilis is the field in which the most brilliantly successful anti-heart disease campaign is being waged today.

Numerous correlations have been attempted relative to the other major factors leading to heart disease, in the hope that some element of cause and effect might be established and a corresponding avenue of prevention opened. Many of these attempted correlations have failed. Some deserve comment either on account of their one time popularity or future promise.

TABLE IV

PERCENTAGE OF CASES SHOWING HIGH BLOOD PRESSURE READINGS (20 MM. HG. OR MORE ABOVE AVERAGE FOR AGE) IN EACH AGE GROUP. 16,662 WHITE MALES, ORDINARY DEPARTMENT. METROPOLITAN LIFE INSURANCE COMPANY, 1921. Examinations by Life Extension Institute

IMPAIRMENT OR HYGIENIC DEFECT	Total Examined at all ages	PERCENTAGE IN EACH AGE GROUP SHOWING SYSTOLIC BLOOD PRESSURE 20 mm. Hg. OR MORE ABOVE NORMAL					
		All Ages	Under 25	25 to 34	35 to 44	45 to 54	55 and Over
WEIGHT:							
(a) 20% or more overweight	2,033	15.7	5.1	11.2	10.7	22.4	32.0
(b) Normal weight*	4,251	6.1	5.6	4.5	4.0	8.2	23.1
DIET:							
(a) Too high protein diet	6,253	7.3	5.1	5.2	5.7	10.0	22.2
(b) Residue†	10,105	7.4	4.9	5.0	5.3	10.4	23.5
USE OF TOBACCO:							
(a) Excessive use of tobacco	5,466	6.6	6.8	4.8	4.3	10.8	20.6
(b) Residue†	10,892	7.7	4.3	5.2	6.1	10.0	23.9
TONSILS:							
(a) Enlarged, septic or buried tonsils	4,330	7.4	5.5	5.2	7.1	12.2	26.1
(b) Residue†	12,028	7.3	4.7	5.0	4.9	9.8	22.6
DENTAL CONDITION:							
(a) Heavy dentistry	6,904	7.6	6.2	5.6	6.4	10.8	18.1
(b) Residue†	9,454	7.1	4.4	4.7	4.8	9.8	26.2
TOTAL CASES EXAMINED	16,358‡	7.3	5.0	5.1	5.5	10.2	23.1

*Five per cent. above or below average weight for age and height.
†All others not showing specified impairment.
‡In 304 cases, blood pressure readings were not taken.

Both hypertension and arteriosclerosis may lay some portion of their incidence at the door of heredity. Even if this be accepted there is no practical contemporary method of control. Hypertension has acquired a number of heterogeneous associations, such as focal infection, high protein diet, excessive use of tobacco, pregnancy and obesity. Though each has in large or small measure contributed to past discussion of hypertension, only the last named enjoys statistical cast. While Table IV[12] serves to indicate the apparent definite association between obesity and hypertension, this does not imply cause and effect. Such a correlation is impressive, however, and well worth consideration for the individual case, especially in view of the 30 per cent increased mortality in obese heart disease patients, as indicated in the Metropolitan Life Insurance tables.[21]

The control of obesity may then be of some importance in the prevention of individual instances of hypertension, and certainly the reduction of overweight in many patients may definitely delay cardiac defeat. It is surprising to find so little reference to the not infrequent association of pregnancy and hypertension. While there is no clear evidence that pregnancy is a factor in the cause of hypertension, occasionally it does seem to be associated with the beginning of this phenomenon.[14] There is little doubt that pregnancy does accelerate an already established hypertension, a situation that can increase the incidence of heart disease.

Many debatable points also arise in a discussion of the prevention of rheumatic fever and the allied manifestations. Although low grade contagion in rheumatic infection may be admitted, isolation is impracticable. The value of tonsillectomy as a preventive measure in the recurrence of rheumatic infections is still controversial. Studies featuring large groups of children[15-16] seem to indicate that tonsillectomy has little effect on rheumatic recurrences if performed after clinical manifestations of the syndrome, but a protective value of some 30 per cent if accomplished before rheumatic infection. Here, again, a decision must rest on the merits of the individual case rather than upon statistical conclusion. In the simple matter of rest every precept counsels a generous measure of this time honored precaution. It is indeed difficult to estimate its exact value, but rest properly timed is our greatest protection against major rheumatic involvement of the heart. This, too, often fails in the prevention of rheumatic heart disease. More recently, climate has been used to advantage in the limitation of prolonged rheumatic infection. In a selected case, barring economic difficulties, the removal of the patient to certain warm climates may curtail the duration of the rheumatic infection and materially lessen the chances of further cardiac damage.[11-13] Following the statement of Swift's hyperergy hypothesis for rheumatic fever, intravenous vaccination with suitable streptococci loomed in the foreground as a possible preventive measure. This field has not been fully explored, but early work by Wilson[17-18] and Stroud[19] fails to indicate a practical value with present technique.

The question of permanent damage to the heart from thyrotoxicosis alone does not seem to be quite settled.[20] Opinion concurs that acceleration of an already existing cardiac impairment, either from organic disease or age, is the chief role of thyrotoxicosis. Just whether prolonged hyperthyroidism alone will cause hypertrophy need not extend this discussion. Control of hyperthyroidism, though not perfected, has reached a point where early application of present therapeutic knowledge may definitely prevent otherwise progressive heart disease.

(2). The Prevention and Treatment of Heart Failure. This, at last, is familiar ground. Much can be done to lengthen the life span in many patients with heart disease even though the initial injury could not have been prevented. Here the physician swings into action, using choice weapons of common sense and special knowledge. A discussion of the treatment of heart failure must come elsewhere, and to this brilliant chapter we must turn for an account of the courage and resource displayed by our forces in this battle against heart disease.

Conclusions

Arteriosclerosis, hypertension, rheumatic infection, and syphilis are the basic factors leading to eighty-five per cent of organic heart disease in this country.

The prevention and early treatment of syphilis would solve ten per cent of the problem.

The larger portion of heart disease preven-

tion is not suited to public health control, but depends upon the knowledge, common sense and industry of the individual physician as applied to his individual patient.

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ACUTE AND SUBACUTE ENDOCARDITIS.*

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Active infection of the endocardium may be divided for clinical purposes into three groups, namely; acute bacterial endocarditis, acute rheumatic endocarditis, and subacute bacterial endocarditis. While this classification is not altogether satisfactory, it serves as a basis for an orderly review of the subject.

Acute bacterial endocarditis has more of an academic than a practical interest. It frequently goes undiagnosed until autopsy or, if suspected, has little bearing on the outcome. It is usually associated with acute general sepsis or occurs as a late complication of some other systemic disease. In cases of general sepsis associated with acute endocarditis it may be difficult to say what part the endocarditis plays in keeping alive the general infection, but in most instances its role is secondary to some other focus of infection. Furthermore, the progress of the general infection is usually so rapid and proceeds so generally to an early fatal termination that the actual damage to the endocardium has little part in the outcome. Patients die, not from the endocarditis, but from the overwhelming toxemia of the disease. Cases less acute in their course may display the embolic phenomenon more characteristic of subacute bacterial endocarditis.

The lesion on the endocardium is distinctive in character, hence, the name often employed of ulcerative endocarditis. This type of lesion is particularly found when the staphylococcus aureus is the infecting organism. The organisms commonly responsible for this form of endocarditis are the haemolytic streptococcus, staphylococcus aureus, the pneumococcus, less frequently the gonococcus, the meningococcus, the influenza bacillus, and rarely organisms of the colon-typhoid group.

Treatment in general is the treatment of sepsis. It would seem that the principal hope would be in the early detection and elimination of the primary source of infection. The results to be obtained are best exemplified in lateral sinus thrombosis. Quite frequently in patients with this condition with blood culture showing numerous colonies of the haemolytic streptococcus, there is prompt sterilization of the blood stream following ligation of the jugular and drainage of the infected sinus area. After secondary foci have been set up on the endocardium or in other inaccessible areas, the outlook is practically hopeless.

Acute rheumatic endocarditis is a part of a systemic disease which manifests itself in the joints, central nervous system, skin and arteries, as well as in the heart. It should be emphasized also that the heart infection is not confined to the endocardium, but that the myocardium and the pericardium are frequently involved. In fact, the symptoms of the disease ordinarily described as acute rheumatic endocarditis arise more often from damage to the myocardium and pericardium than from injury to the endocardium.

Invasion of the heart valves probably takes place through the small blood vessels, passing

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out into the leaflets from the base of the valves. The infection extends through the endothelial layer and on these denuded surfaces small collections of platelets and fibrin take place. As these become organized the typical nodules of acute rheumatic endocarditis are formed. It should be remembered that these nodules are comparatively small and are firmly adherent to the underlying structure. They do not readily break loose to form emboli on the one hand, nor do they seriously interfere with the function of the valve on the other. These features account in part for the difference in the clinical picture between acute rheumatic and subacute bacterial endocarditis.

These nodules tend to localize along the line of valve closure, although they may extend to other parts of the endocardium. The focal inflammatory areas in the endocardium are similar in structure, although not as typical as the Aschoff bodies found in the myocardium so characteristic of rheumatic infection of the heart. The importance of the acute endocardial lesions lies not in its immediate effect on heart function, but in the distortion of the valvular structure that takes place during the process of healing, leading finally to the familiar picture of chronic rheumatic valvular disease.

While it is commonly accepted that some strain of the streptococcus group is the responsible etiological agent, this has not yet received adequate proof. Positive blood cultures are the exception and bacteria have not been demonstrated in the focal lesion. Whether the changes in the endocardium are due to bacterial invasion, the action of a virus, or the effect of an allergic reaction, remains to be proven.

While the vast majority of patients suffering from acute rheumatic fever have an associated heart involvement, this fact may be readily overlooked. There are few characteristic symptoms during the acute stage, and practically no symptoms as far as the endocardium is concerned. Pain over the precordium, tachycardia out of proportion to the temperature and persisting as the temperature falls, continued low-grade temperature after the acute joint symptoms have subsided, changes in the quality of the heart sounds, the appearance of changes in rhythm, especially auricular fibrillation, or partial block, should all suggest cardiac involvement. When a case is under prolonged observation, the appearance of a murmur not present before, or the increase in a mitral systolic murmur previously noted, is of importance. Changes in conduction time can be demonstrated by means of electrocardiographic tracing in a considerable percentage of cases. It is to be noted that most of these signs and symptoms have their origin in the myocardium rather than the endocardium. In any case of acute rheumatic fever, no matter how mild, endocarditis and myocarditis should be assumed to exist until satisfactorily disproven, and if in doubt the patient should be treated as if the condition were known to exist.

The treatment of acute rheumatic endocarditis can be summed up in the one word, rest. Very few patients die of acute rheumatic heart disease, and these few succumb on account of myocardial or pericardial damage. Drugs, except to alleviate pain and promote rest, have no field. The patient should be kept at rest until all evidence of active infection has subsided, and return to any activity should be in a most gradual way. The complete subsidence of temperature, return of the pulse rate to normal, the restoration of the blood picture to normal, should take place before any activity is considered.

Subacute bacterial endocarditis presents a characteristic clinical picture associated with a definite and uniform pathology. By far the greater percentage of these cases are due to the streptococcus viridans. Occasionally other non-haemolytic strains of the streptococcus may be found, or such organisms as the gonococcus, the meningococcus, the influenza bacillus, the staphylococcus albus, and the micrococcus melitensis. Infection usually takes place on an endocardium previously damaged by infection, or in a congenitally defective heart.

The endocardial lesion consists of loosely knit vegetations, most commonly on the mitral valve, often extending out on the chordae tendinae and on the wall of the auricle. These vegetations consist of thrombotic material on an ulcerated base. Partial organization takes place at the base, but the vegetations are larger, softer and much less firmly adherent to the underlying structure than are the rheumatic nodules. They are consequently much more easily dislodged and borne as emboli to distant points in the body. It is this tendency to form emboli that gives rise to the outstanding clinical feature of this disease. Furthermore, these vegetations are swarming with bacteria, shielded from the natural protective substance in the blood stream or bactericidal agents in-

troduced from without. There is, however, a rather fine balance between the invasive power of the organism and the protective forces of the blood. It seems apparent that such organisms as are discharged into the blood stream are quickly disposed of. These cases will show positive blood cultures over a period of months without presenting the symptoms of a general sepsis and without setting up distant secondary foci. Next to embolic phenomena, the most striking feature of this disease is the tendency to a steadily progressive anemia.

It is doubtful whether the mechanical effect of the endocarditis itself affects materially the course of this condition. It is true that as the disease progresses evidence of decompensation appears, but this is probably due to the combined effect of anemia, the action of toxins on the heart muscle, and the handicap of the old valvular lesions on which the subacute infection is grafted. My own experience is drawn from twenty-five cases that have come under my observation during the past twelve years.

It is remarkable how closely most of these cases follow a definite pattern. The onset is often so gradual that the patient can fix no definite time at which he became sick. Many of them are up and around for weeks after the signs of the disease are quite evident. Six of my cases have walked into my office with histories that indicated the disease had been progressing for weeks or months, in one instance for over a year. Occasionally the patient will relate the onset to some occurrence such as a severe chilling, an acute cold, or even an accident. The general symptoms are those based on fever, toxemia, and anemia, such as weakness, depression, fatigability, sweats, headache, and loss of appetite. The more characteristic signs and symptoms are those resulting from the seeding out of emboli. The appearance of the skin is often quite striking, the so-called "cafe au lait" appearance of Libman. This is so evident at times as to suggest a high degree of jaundice. It is not dependent, however, on an increase of serum bilirubin in the blood, nor related to the degree of anemia. In one patient who presented this appearance most markedly the haemoglobin was 100 per cent, and the serum bilirubin 2 mg. per litre.

Emboli lodge in the skin, producing petechial spots or larger ecchymoses. Small, very tender red spots may appear in the tips of the fingers or toes. Underneath the finger-nails there may be elongated haemorrhagic areas. Similar spots may be found in the sclerae. Sudden failure of vision in an eye may result from the lodgment of an embolus in the central retinal artery. Deposits in the brain give rise to symptoms varying from a slight transitory palsy or a brief aphasia to complete hemiplegia or sudden death. Enlargement of the spleen which is demonstrable in almost every case is brought about by repeated splenic infarcts. With this enlargement there is usually a perisplenitis present, producing the left upper quadrant pain so frequently encountered. Infarctions of the kidney are common, and are associated with the appearance of blood and albumin in the urine. At the same time pain is experienced in the kidney region. One of my cases was referred to me as acute haemorrhagic nephritis on account of these findings. Emboli to other abdominal viscera no doubt take place although their results are less apparent. Sudden attacks of obscure abdominal pain accompanied by further elevation of temperature are not infrequently seen. Emboli in the joints with transitory swelling and pain in the part are common. Occlusion of fairly large arteries in the extremities occasionally occurs.

The temperature curve is variable. The patients may run a very low-grade temperature for months interrupted from time to time by sudden rises that gradually subside after a few days. These sudden elevations are usually associated with evidence of lodgment of fresh embodi. There may be fairly long periods of complete remission of temperature elevation.

Blood cultures are usually positive. In only two of my cases did we fail to obtain positive cultures. In the cases giving positive cultures, the streptococcus viridans was present in all but two cases. In these two instances a non-haemolytic, non-pigment producing streptococcus was obtained. It was noted that both of these cases progressed more rapidly than the usual viridans infection. Both terminated in three to four months from the onset.

While the disease is characterized by a progressive anemia, this is not always present when first seen. In one instance the haemoglobin was 100 per cent at the first examination and in two others an initial haemoglobin of over 90 per cent was found. The average for all cases when first seen was 69 per cent and the lowest found was 39 per cent. The anemia is of the secondary type but in most instances the color index is near one. The average found

for all cases was .91. The white blood count varied from 4,100-17,500. Fifty per cent of the cases had counts of under 9,000 and 83 per cent were under 12,000. Total counts with a range of 5,000-8,000 are quite common. In a number of instances both the total white count and the differential formula were normal, although most of the cases showed a percentage rise in the polymorphonuclear cells. In the terminal stage there is a tendency to a fall in the total count and in both the relative and absolute number of granulocytes. This together with the severe anemia and a color index near one suggests a fairly high degree of bone marrow aplasia.

The various methods of treatment advocated have so far not affected the mortality. While there are a few recorded cases of recovery, it is doubtful whether recovery in any particular case can be related to the treatment. Transfusions both with immunized and non-immunized donors have been used. Various chemicals, such as mercurochrome, acroflavin, gentian violet, arsephenamine, neo-arsephenamine, and cacodylate of soda in large doses, have been introduced into the circulation. Various types of anti-streptococcic sera have been employed; all, with a few individual exceptions, have met with the same melancholy results. Occasionally a case is spontaneously arrested under general supportive treatment. In only two instances have I seen recovery from streptococcus viridans septicaemia and in neither one of these cases was there satisfactory evidence of endocarditis. In both instances the blood stream became sterile and remained so after an unusually high rise of temperature, to 106 in one case and to 107 in the other.

Summary

Acute bacterial endocarditis appears in association with acute sepsis or as a late complication of other constitutional disease. It has no characteristic symptomatology and its progress and treatment is that of the primary disease.

Acute rheumatic endocarditis is usually a part of a more general heart infection. During the acute stage the principal diagnostic symptoms are the result of myocardial and pericardial involvement. The importance of the endocarditis is due to the fact that during the process of healing the heart valves affected become deformed and distorted, resulting in permanent stenosis or insufficiency of varying degree.

Subacute bacterial endocarditis is a striking clinical entity characterized by a prolonged course, irregular fever, progressive anemia, and a group of symptoms resulting from the deposit of emboli in the skin, brain, spleen, kidneys, joints, and other organs.

339 *Boush Street.*

CORONARY DISEASE.*

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Much interest has been shown in coronary disease in the last few years; it is better understood clinically and the newer instruments of precision such as the electrocardiograph have aided wonderfully in heart studies. However, it seems that coronary disease is increasing, probably due to the hurry and strain of modern civilization.

It is rather to be expected that the blood vessels supplying a muscle so continuously active as the heart would very frequently show signs of wear. Dr. Osler was fond of quoting the old axiom, "that a man is as old as his arteries." In like manner, the condition of the heart muscle depends a great deal on the condition of the arteries supplying it.

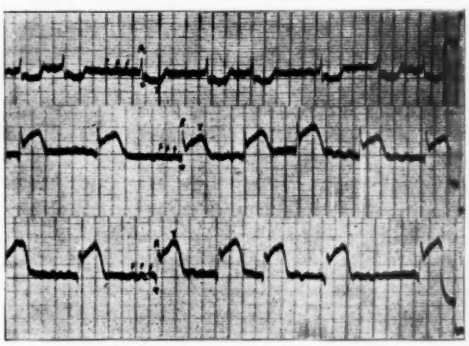

Fig. 1.—Electrocardiogram of patient, taken March 4th, four hours after obstruction of coronary artery. The Leads are I, II, and III from above downward. The two steps at the end of the lead are caused by introduction of 2 millivolts in the circuit with the patient, and serve as control of the standardization. The space between the corresponding line of each pair of ordinates is 0.20 second.

Pardee's sign taken from Dr. Pardee's original article in **Archives of Internal Medicine.**

The T wave comes off high from the descending limb of the R.

Coronary disease is either a gradual narrowing of the coronary arteries usually due to sclerosis with symptoms increasing slowly in

*Read as part of the symposium on Diseases of the Heart at the sixty-third annual meeting of the Medical Society of Virginia in Richmond, November 1-3, 1932.

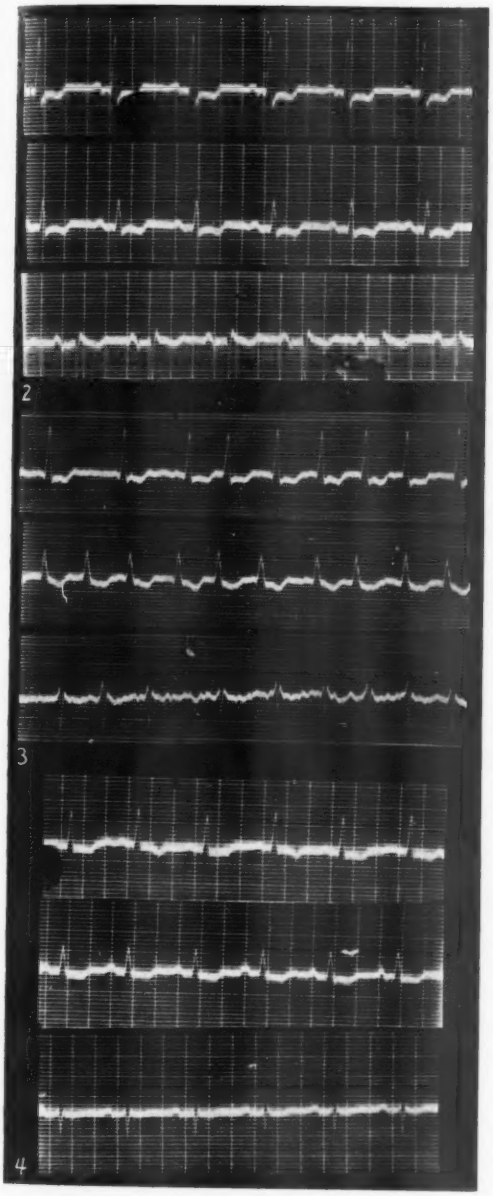

Fig. 2.—Patient W. W. Record taken five weeks after thrombosis. This patient had very severe pain and developed a pericardial friction rub.
The record shows an inversion of the T wave and at times almost a typical V shape.

Fig. 3.—Patient W. W. This record is on the same patient as No. 2, twelve weeks after the primary attack.
This shows a typical fibrillation with inversion of the T wave and slurring of the QRD interval in the second lead. The T wave is inverted.

Fig. 4.—Patient W. W. This record is on the same patient as No. 2 and No. 3.
Record taken sixteen weeks after primary thrombosis. The heart has returned to normal rhythm but still shows inversion of the T wave in the first lead.

intensity as the weeks or months go by; or a sudden occlusion frequently due to thrombosis which may give a stormy group of symptoms or result in sudden death. The differentiation in two classes may possibly give us a better understanding, yet, at the same time it may be confusing because the two conditions are frequently manifestations of the same process.

Both coronary sclerosis and occlusion are more prevalent at the time of life in which generalized arteriosclerosis is most apparent, namely, after the fiftieth year, yet, occlusion may occur at all ages even in the very young.

If the obstruction in the coronary system is slight or comes on slowly so that defects are taken care of by the veins of Thebesius or arterial anastomosis, there may be no symptoms whatever and the condition is found at post mortem when death has occurred from causes other than cardiac disease. Even if there are moderate myocardial changes and resultant hypertrophy there may be few symptoms, provided there has not been too much effort strain on the heart. However, as the condition progresses the symptoms will become apparent and increase. There may be dyspnoea on exertion and frequently the first symptom is dull pain on walking fast or up a little hill. This pain may be substernal, or it may be in the shoulders, neck, arms or wrists.

When a patient presents himself, a very careful history should be taken, inquiring into heredity, habits, financial success, exercise, dyspnoea, pain, palpitation, heart distress or attacks of acute indigestion. We must remember that the history will bring out conditions which are not manifest even with the most rigid examination.

I agree with Paul White,[1] "that the cultivation of careful history taking is worth serious effort and should not be left to a secretary or assistant. It is better to rely on an assistant's physical examination than on his history taking if both cannot be accomplished by one's self." The history and examination must not be limited to the heart alone but must include the whole body.

The examination may show nothing abnormal, yet, if there is a considerable area of infarction there is apt to be rather much dilatation and later a compensative hypertrophy. If the condition has not been primarily hypertensive, we may find weak heart sounds and a low blood pressure, or we may find the signs such as occur in arterial sclerosis with hypertension.

We may have gallop rhythm and there may be functional mitral murmurs or aortic changes due to the sclerosis. We may find the more advanced signs of heart disease, marked dyspnoea, cyanosis, pulmonary edema, Cheyne Stokes' breathing, enlarged liver and subcutaneous edema.

The X-ray study will tell us about the conditions of the aorta as to whether it is tortuous or enlarged, and it is more accurate than percussion in giving the exact size of the heart. Frequently, it may surprise us by showing an aneurism or mediastinal tumor.

The electrocardiograph may show defects in the conduction system such as bundle branch block or auriculo-ventricular block. By the flattening or inversion of the T wave it indicates a distinct myocardial change. Occasionally certain heart defects may be brought out in no other way than with the use of the electrocardiograph. Yet, the electrocardiograph may be negative in serious heart disease and we must consider it as supplemental to the other methods of study.

The good sense and skill of the physician may be taxed to the utmost in determining whether a few vague symptoms come from organic trouble or are functional, possibly due to lack of exercise, or possibly due to tobacco or to the normal decreased capacity as we grow older. Cabot[2] says, "most diagnoses of heart disease, whether made by physicians or suspected by patients, are in my experience wrong. In such cases the heart is usually sound." However, it seems to me that in patients over fifty, when the diagnosis is doubtful, we too frequently find that there is present a true cardiac disease.

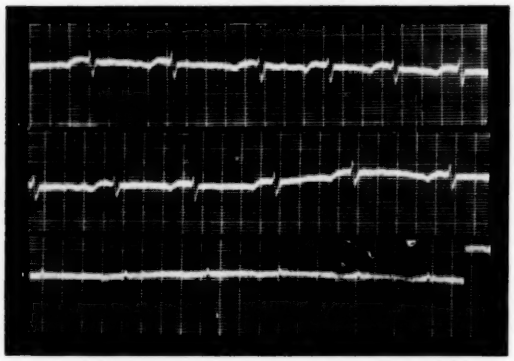

Fig. 5.—Record taken on woman age fifty admitted with typical attack of thrombosis. This record showed a markedly low voltage with fibrillation. She died suddenly eight days after the attack. Post mortem showed typical thrombosis.

Coronary thrombosis, with the secondary myocardial changes has been known to the pathologist for a long time, yet, it is only within the last few years that clinicians have separated it from the anginal group and given it a definite clinical entity. The symptoms and course may be so typical that it is diagnosed frequently by the patient's physician even though he does not have access to the expensive apparatus for heart study.

Pathologically, the difference between thrombosis and narrowing of the coronary artery may be only one of rapidity and degree, yet the symptoms are very different. In narrowing the symptoms may come on only with exertion, while thrombosis very often comes on when the patient is at rest. Frequently it is fatal at once or it may run a mild course, but usually the onset is sudden and with terrific pain, dyspnoea and shock. The pain is intense, continuous and unbearable, lasting hours and even days. It is usually substernal and may radiate to the arms and neck and sometimes to the wrists. It may be in the upper abdomen and we may have grave doubts as to whether we are dealing with a serious abdominal condition. The shock is intense, but unlike surgical shock the patient is more uncomfortable if he attempts to lie down.

On examination the patient's face shows intense anguish and is covered with a cold sweat. The skin is ashy color, he is complaining greatly of pain and is extremely dyspnoeic. The pulse is weak, rapid, yet, may sometimes be slow and the blood pressure usually falls a great deal. If there has been a previous hypertension it may drop to normal. If it has previously been normal, it may drop to 60 or 70. The heart sounds are weak and distant especially at the apex and there may be systolic or diastolic murmurs. There may be moisture at the bases of both lungs. If the patient lives, the next day or so we may find a marked pericardial rub, and there is usually fever and an increased leucocyte count.

In occlusion the electrocardiogram may show most characteristic changes.

1. The T wave coming off high from the descending line of the R.

2. The peculiar V shaped R wave with the rounded S-T interval. This may occur in the first of the third lead, probably depending on

whether the damage is in the left or right coronary artery.

3. Low voltage.

4. Auriculo-ventricular block, bundle branch block, or other changes in the conduction system. These changes come on usually a month or so after the onset and may differ little from the change found in coronary sclerosis.

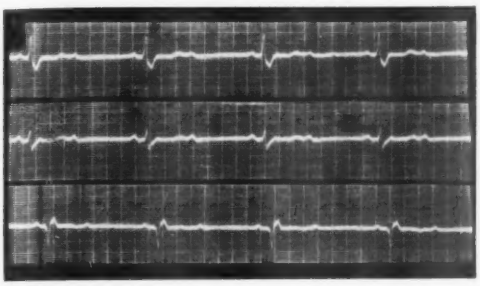

Fig. 6.—This shows a typical auriculo-ventricular block two to one rhythm in a man age 52.

Holland and Levine,[3] studying a large number of cases, show that the electrocardiogram changes from day to day. It may be normal the first few days and then gradually show typical changes and later appear normal again. A normal electrocardiogram does not exclude thrombosis, but it is only in a very small number of cases that changes are not shown at one time or another.

The prognosis is usually worse if the symptoms are very intense or prolonged. Even with the marked improvement of symptoms death may suddenly come a few days after the primary onset.

If the patient is seen in attack of coronary occlusion, the pain, dyspnoea and shock are frequently so great that by necessity we must give him relief. The nitrites will probably do harm, the milder sedatives will be of no value and large doses of morphia must be used to give this relief. The morphia must then be repeated along in sufficient amounts to relieve the pain which may last several hours to a day or so. Afterwards the patient should be made to rest possibly for several months and then the picture may differ little from that of coronary narrowing and both are the picture of a chronic myocardial insufficiency. Then the basal principle in the treatment of all myocardial insufficiency is the proper adaptation of the amount of exercise and work to the heart capacity.

Frequently the patient's mental condition is such that we have to beware of making a mental invalid, however, too frequently we are swayed by his impatience and importunity and permit him to overwork. Even his friends, zealous but unwise, will insist on his exercising to keep from getting weak.

Even when there is much cardiac embarrassment, it frequently happens that after proper rest and medication the patient is free from all symptoms. In spite of the advice that if they over-exert, they will meet disaster, after a few months of apparently good health, they almost invariably disregard this warning and have another cardiac break down.

When the heart patient is seen for the first

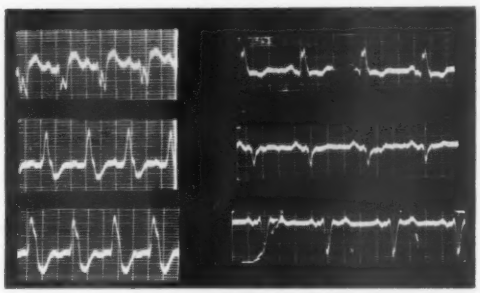

Fig. 7.—This record shows bundle branch block occurring in two patients, one in the left and one in the right coronary. This is shown by the wide QRS interval and slurring of the R wave.

time, if the symptoms are at all marked, it is better to have absolute rest, until the symptoms are all gone; during this time we have the opportunity to study him and then we can begin his exercise slowly and watch the effect. We may gradually allow the patient to work part time, if the work is light. As I have said before, the greatest judgment and tact are necessary when the patient feels good. If the heart patient is well directed he may get a life of happiness and do a fair amount of work. He is usually better with a little work or a little exercise, provided, it is properly regulated.

The proper use of certain drugs, especially digitalis, is of great value to the failing heart. We should avoid the things such as over-exertion that will give dyspnoea or pain. He should be studied in regard to habits that may be detrimental, such as over-eating, smoking too much, and not getting regular hours at night.

If the heart suggest syphilis or if there is a syphilitic history, or if the serum reaction is

positive in an older patient without heart symptoms, it is better to give very mild treatment, at first using the iodides and mercury, later changing to bismuth and the neo-arsphenamine.

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THE USE OF DRUGS IN HEART DISEASE.*

WILLIAM B. PORTER, M. D., Richmond, Va.

Active therapy of heart disease is concerned with the use of methods and remedies which research and clinical experience have shown to be salutary in eradicating infectious and toxic agents active in the production of tissue changes in the cardiovascular systems; and with the administration of pharmacologic substances to adjust pathologic physiology resulting from the progression of intrinsic cardiovascular disease or induced by complicating extrinsic factors.

While consideration of the indications for, method of use, and choice of remedies primarily designed for their specific action in modifying or eradicating the various etiological agents operating in the production of heart disease is beyond the scope of our particular discussion, yet it is keenly appreciated that this aspect of the subject is concerned with many phases of specialized therapy of the greatest possible importance to a satisfactory termination of illness induced by an affection of the heart. Obviously it is impossible to cover the entire field and it has been deemed desirable to limit this discussion to a consideration of congestive heart failure, for this is the most common condition affecting those patients who consult a physician demanding therapeutic control of symptoms induced by heart disease. The subject can be approached in a fairly well standardized fashion for the problem is basically the same regardless of the intrinsic or extrinsic factors which have induced the departure from normal physiology, but the duration and the severity of congestive failure influence the intensity of symptoms, the time-length of illness, and the end results of therapy.

One must be increasingly impressed with the necessity for an accurate conception of the problems concerned in the therapy of chronic diseases. Much time and effort are consumed in an attempt to tag diseases with a name, yet a clear conception of the pathologic-physiology existing in the somatic systems of the patient having a given malady indicates the only true scheme for a therapeutic approach. If remedies are chosen which should modify these departures from normal and the physiologic action of these remedies is secured by the use of proper dosage, relief of much distress will result and the prognosis in heart disease will be more hopeful.

Congestive heart failure is due to inadequacy of the myocardium, which induces unsatisfactory circulation resulting in stasis in various parts of the body. Venous pressure is increased which in turn induces increased rate of transudation of fluid and crystaloids through the capillary wall and decreased rate of reabsorption of these substances into the venous circulation. If this state continues, clinical edema results together with dyspnea, cyanosis, cough and diminished urinary excretion. It must constantly be borne in mind that the inception of congestive heart failure means muscle fatigue with the abnormal chemical state which exists in an exhausted muscle, and that this has been induced either by an excessive and prolonged strain of a normal heart muscle, or by less excessive strain of a diseased myocardium. In either event the fundamental state of fatigue terminating in functional inadequacy is the important truth which must form the basis of all sane therapy.

The fundamental principle of rest is accepted as the most important measure in the relief of congestive failure, for there is no drug which will substitute for the necessary amount of physiological rest. Whether this rest is to be merely a limitation of accustomed activities or absolute confinement in a semi-recumbent posture in a chair or bed depends upon the degree of failure and urgency of the problem.

The drug therapy of congestive failure concerns itself primarily with a consideration of the method of administration and the effects of digitalis on the heart and circulation.

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Read as part of the symposium on Diseases of the Heart at the sixty-third annual session of the Medical Society of Virginia, in Richmond, November 1-3, 1932.

Remedies to induce rest and those designed to aid in the relief of edema are useful and important, but they must be classed as of secondary importance to the sane and efficient use of foxglove. Some years ago reliable preparations of digitalis were expensive and not universally obtainable, but that is not true today, and good and reliable digitalis, which is reasonably priced, can be had anywhere. Much confusion about the use of digitalis has existed in the past, due no doubt to an uncertainty in the minds of physicians as to what effect digitalis had on the heart when it had failed under strain, either from valve defects. increased peripheral resistance of hypertension, myocardial fibrosis from diffuse coronary disease, or a combination of all of these. The physiological action of digitalis important in the treatment of heart disease is concerned only with its effect on the myocardium. Its first effect is depression of the pace-making function of the sinoauricular node which results in a slowing of the heart rate when a normal cardiac mechanism exists. This effect is noted in the normal and pathological heart, while the degree of this effect is quite variable in different individuals. Secondly, digitalis affects cardiac contraction. In some manner not yet understood, the tone of the heart muscle and the completeness of contraction when there is dilatation and failure are much increased by the drug. These effects in man are at times most impressive, yet there are those who continue to teach that digitalis is indicated only when congestive failure exists with auricular fibrillation or flutter. The third effect is on conduction. This occurs throughout the heart muscle, but the most important and marked influence is on the main conducting tract bundle (His) and node (of Tawara). This effect of digitalis is most important, for it is this action which reduces ventricular rate by interposing a block between the auricle and ventricle when the latter is being rapidly and arrhythmically excited by a fibrillating auricle.

Admitting the existence of the indications for digitalis, one admits the necessity of digitalization which consists in the saturation slow or fast of the patient's system with the drug until full therapeutic effect on the heart is secured or until toxic symptoms develop. The dosage can be only roughly gauged, for there is considerable variation in the susceptibility of different individuals, and while the size and weight of the patient is the most reliable index, one cannot make a hard and fast rule for accurate quantities. 0.1 gram (1½ grains) of the powdered leaf or 1 c.c. of the tincture per ten pounds of body weight plus 0.1 gram for each additional day required to introduce the total dosage is a useful guide. After full physiological effects have been obtained, 0.1 gram (1½ grains) per day is usually satisfactory as a maintenance dose. The continuation of this dosage enables a patient to remain active and comfortable and certainly lessens the liability of a return of active failure. If digitalis is accurately given in sufficient dosage to patients in whom it is therapeutically indicated, satisfactory results are obtained in a high percentage of patients. Oral administration is the method of choice in 95 per cent of all patients, and, unless vomiting prevents a retention of the drug, one may not expect superior results from hypodermic methods. Vomiting usually means that the patient has a sufficient amount of digitalis or that intense venous stasis exists in the gastro-intestinal tract. In the latter event the situation is an acute one and the intravenous administration of 60 per cent of the calculated dose of a reliable tincture is indicated. At times one is confronted with such urgent symptoms due to the rapid inception of congestive failure that death may supervene before the effects of digitalis can be expected. Confronted with this emergency, prompt relief may be obtained from venesection, removing from 350 to 500 c.c. of blood. The phenomenon indicating high venous pressure is the only accurate guide in choosing this procedure and not the existence or non-existence of arterial hypertension. Frequently after digitalis has been given a patient and symptoms are not relieved, a change of the preparation or a resort to a new method of administration is adopted. I suggest that the more sane attitude would be to first re-evaluate the diagnosis and to critically question the wisdom or justification for the administration of the drug in the first instance; and then accurately determine whether the drug has been given in sufficient amounts. The explanation for failure may be that the disease processes which have induced failure are advanced to such a degree that recovery is not possible, but more frequently the indications for digitalis did not exist or the amount administered has been inadequate. If after a patient has been digitalized, together with a reasonable restriction of fluid and salt, there remains clinical

edema, the following regime is followed: Theobromin calcium salicylate or throbromin sodium salicylate is given 4 grams (60 grains) divided into three doses, administered every other day for eight to ten days. If this does not effectively remove the edema, urea in large doses, 30 to 60 grams per day, administered in three doses in lemonade is given for at least a week before resorting to any other method. This usually results in excessive diuresis in all patients who have persistent edema due to congestive heart failure. We have been greatly impressed with the usefulness of this substance, which is apparently not in common use. The diuretics represented by salyrgan is reserved for those patients who remain resistant to all other procedures, and especially those patients who are relieved of the postural edema by the above named methods, but who continue to have recurrent ascites. The drug is used intravenously, beginning with 0.5 c.c. once a day, increasing the amount to 2 c.c. in four days. The method is preceded by the administration of ammonium chloride 8 grams (240 grains) for two days prior to the use of salyrgan, and one week should elapse between a series of injections, to evade the possibility of mercury poisoning. The substance is a very useful remedy in selected patients, but there exists potential danger from its use which must not be ignored.

Any discussion of the therapy of heart disease would be incomplete unless one commented upon the effects of digitalis upon arterial tension. Variations in mean blood pressure depend not so much on changes in the minute volume of blood circulating in the arterial tree, but on the caliber of that immense arteriolar and capillary bed which is controlled by the vasomotor nervous system. The minute volume of circulating blood may vary as much as 300 per cent, yet mean arterial pressure remain constant provided the vasomotor control of peripheral resistance is retained. Simple illustrations are to be found in the reaction of the circulation in exercise and severe anemias, when the minute volume of blood may be increased tremendously, yet arterial pressure may actually be reduced. There is nothing in the clinical action of digitalis to suggest that it will modify significantly arterial blood pressure. It will be found that in the large majority of instances when heart failure of the congestive type co-exists with hypertension the relief of the venous stasis will induce substantial reduction in the arterial tension. Furthermore, one can find no justification for the continued use of digitalis in those states characterized by hypotension and tachycardia in the absence of elevated venous pressure and diminution of the rate of blood flow. Even if digitalis would increase the force of ventricular contraction and reduce the heart rate in sepsis and shock, it is doubtful whether the patient's condition would be improved, unless at the same time an increase of vascular tone could be had. The problem here is one not concerned primarily with an inadequacy of the myocardium, but probably with reduced ventricular filling, a condition quite unlike congestive failure. This aspect of the subject is concerned with the use of digitalis in the acute infections, particularly pneumonia. It is interesting to note that its use in pneumonia in large and well controlled groups of patients of all ages shows that it actually increases instead of decreases the mortality rate in this disease. All available facts pertaining to the physiological action of digitalis indicate that these results are axiomatic.

It is apparent to even the casual observer that the mortality rate in pneumonia will be reduced not by therapeutic effort directed at the circulatory disturbance induced by the toxemia of the disease, but by methods combating the bacteremia and septicemia.

In closing this symposium, it is fitting to note that the therapeutic results obtained in organic heart disease justify conservative optimism on the part of physicians. The sane use of this psychological approach augments greatly all drug therapy.

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Discussion

Dr. Manfred Call, *Richmond:* Dr. Randolph and I agreed to divide this discussion, I to take the first two papers and he the last two. So I shall devote myself more specifically to Dr. Wood's and Dr. Martin's papers.

In a pre-sessional review of the papers read, several observations and deductions drawn therefrom may be of interest if we are to utilize for our mental enrich-

ment and practical application the material collected and condensed by the four essayists.

(1). The first and fourth papers in the series were of a more general scope than the second and third, which developed specific phases of the general subject.

(2). None of the papers were encyclopedic (certainly a boon to the audience), but each contained an array of facts and correlations so interesting as to justify (after their publication) the careful individual study of each paper, with the necessary collateral reading, by each member of this Society who is practicing medicine, and they should furnish interesting discussion for local groups or societies.

I feel that this symposium may be appropriately called "A guide to further study for a comprehensive understanding of heart disease, its causation, prevention, and treatment."

Speaking specifically on Dr. Wood's paper, his remarks on etiology need no amplification. In that division dealing with prevention, implications suggested in the context may be more specifically expressed. He speaks of the control of basic conditions leading to heart disease and specifically of heredity, focal infection, high-protein diet, tobacco, pregnancy, and obesity in their relationship to hypertensive and arteriosclerotic cases, and in the second phase, the relief and prevention of heart failure. Modification of the effect of uncontrollable factors is implied, but after these factors have produced disease much may be done before the onset of heart failure.

As Dr. Martin stated, given the presence of certain known causative factors, we are justified in the presumption that heart damage will result; and the prompt institution of active measures may materially limit or modify a pathological process that otherwise might tend to be more extensive. I believe that careful clinical observation will disclose in certain patients definite tendencies to hypertonic vascular states that may be looked upon as presclerotic conditions, amenable to treatment. I have seen this more frequently, perhaps, in well kept records of the pregnant state, and these particular cases have emphasized the necessity for an association of heart, blood-vessels and kidneys in a mechanism that must be studied as a whole in all conditions leading to hypertensive disease.

It might be of interest here to call attention to the rather intensive study of the pregnant state which is now being conducted by Dr. Lapham under the auspices of this Society. The records of the pregnant state to which I have reference are those I have had the pleasuse of seeing with Dr. Gray, starting with the third or fourth week of pregnancy and continuing to the end. Many show presclerotic conditions, continuing through the pregnancy. I believe if we will make a careful study, practically all presclerotic conditions can be recognized and permanent damage prevented.

There is another type of case, perhaps, that requires special mention, and that is the child who, by the nonrecognition of a rheumatic carditis, comes with a heart permanently crippled by pericardial, myocardial, and endocardial change, and who will perhaps die at puberty, largely because he had no medical supervision during his time of greatest need, or because the constant strict supervision suggested by Dr. Martin was not carried out. I think it is undoubtedly true that, if a child's heart is affected as a part of the rheumatic affection, and if he does not have the benefit of prolonged rest in bed and proper medical supervision, the reserve power of the heart that is permanently lost will be out of proportion to the valve condition that has resulted from the infection he had at first, and that as a result of loss of this reserve power his days are undoubtedly shortened.

Dr. Martin's paper is depressing in that two of the three types of endocarditis he pictures are fatal, while the third (rheumatic), rarely produces an early cardiac death. Yet in Virginia, with 65.7 per cent of 300 heart cases due to rheumatism, there is an incidence of 3.9 cases of subacute bacterial endocarditis. Now, with 1.3 per cent of subacute bacterial endocarditis, most of which are grafts on a previous rheumatic condition, that would give us around 4 to 5 per cent of original rheumatic fever, which I think is very striking.

The only addition I can make to Dr. Martin's paper is to describe the principles of a treatment for rheumatic fever, with a view to preventing valvular lesions, carried out by Caton, of Edinboro, and indorsed by Osler. It emphasizes the necessity for rest and the good results that may ensue, and it gave me an understanding of what rest is that I never had had before. Dr. Barber, of Richmond, had been abroad and brought back a monograph by Caton. He puts the patient to bed—between blankets—and pushes salicylates and alkalies, limiting him to a milk diet and water. Probably that would be modified now, as we know more of vitamins. The heart is examined every day for the sounds at the apex and base and the transverse diameter. Should any modification take place, the patient is put in absolute rest, is not allowed to turn over in bed but is lifted by a nurse; he is lifted up to be put on the bedpan; he is not allowed to hold a tube in his hand to take nourishment. This is continued until a transverse diameter that has increased returns to normal, or until a murmur that has appeared may disappear or be modified. Even then the patient is not allowed to sit up until the effect of exercise on the heart rate, its size, and its sounds, is determined by experiment.

I have kept patients in bed as long as six months after temperature has disappeared; and today, when you examine them, you can not get by physical examination evidence of a chronic valvular lesion.

DR. B. M. RANDOLPH, *Charlottesville:* It is obviously impossible to give a worthy discussion of this extensive and admirable symposium in the time allotted to us, but as the papers were read there were a few points that I noted.

I should like to suggest to Dr. Wood the possibility that the difference between the cardiac statistics of syphilitic heart disease in Texas and New England may be not altogether due to race (he seemed to infer that), but that the more thorough recognition and treatment of early syphilis that prevail in New England may have something to do with such statistics.

I want to thank Dr. Martin for pointing out that the prognosis of bacterial endocarditis is the prognosis of the sepsis of the organism engaged, and not of the particular state itself; and I want to warmly indorse what Dr. Lawson said about the history. He hit the fundamental point in prevention of the rotation of patients among specialists, of which the public complains to such a great extent.

I was very much impressed that Dr. Porter saw fit to make mention of only one drug. Beyond that, I do not think his paper can be improved upon.

I shall confine what I have to say to a word or name that I did not hear mentioned in the whole discussion—angina—and particularly to what we mean by this term.

The Greek word from which *angina* is derived means to *strangle*. Originally its use was confined to affections of the throat associated with regional pain, choking, or difficulty in swallowing. In the older literature we find the terms *angina tonsillaris*, *angina trachealis*, *angina parotides* (mumps), *angina maligna* (diphtheria).

In Heberden's classic description of the disease

which we today call true angina pectoris, the condition received this name. Parry later calls the same malady *syncope anginosa*. During the last hundred years the use of the word in its original sense of *choking* has disappeared, and it has come to mean spasmodic myocardial pain. Varying stages of pathology and degrees of symptoms have made a precise meaning difficult to ascertain, and in actual medical language such words as *pseudo-angina* and *anginoid* have been coined to supply a more elastic nomenclature for myocardial pain.

Pathologically, the disease of the heart muscle and coronary vessels, of which true angina might be called the terminal phase, has long been understood. Hooper's Medical Dictionary (1834) states: "It mostly depends upon an ossification of the coronary arteries, and then we can never expect a radical cure." Except in a more exact understanding of the pathological changes of vascular disease, and of the associated changes in the myocardium, there has been but little added to the knowledge of the pathological anatomy. And when we come to the consideration of the nature and the manner of the production of the pain, the state of our knowledge is very unsatisfactory. Many theories have been advanced, accompanied by much argument, but without proof. Heberden considered the pain as due to spasm of cardiac muscle. Huchard collected as many as eighty theories of the manner of its production, and there have been others since. At the present time, the prevailing opinion seems to be that the pain is the result of spasmodic contraction of the coronary arteries, or of the ischemia resulting from such contraction. Elaborate discussions are to be found in the literature, arguing mostly from analogy of vascular conditions observed in other regions of the body, but all failing to furnish actual demonstration of the truth of any hypothesis. To my mind, there are very definite reasons for not accepting the current theories:

1. The pain of so-called pseudo-angina is not accounted for. Here, as usual, the old alibi of applying the terms "neurotic" and "hysterical" to patients who suffer from unexplained symptoms is well to the front. It is not satisfactory to brush away in such a fashion a symptom which differs only in degree, merely because the type of patient, the history, and the prognosis are different.

2. Degenerative disease of the coronary arteries is by no means uncommon in women, while angina pectoris is extremely rare.

3. It is very common for patients to die of the effects of coronary arteriosclerosis without ever having pain, either before or during the terminal illness.

4. Cases with a history of typical angina pectoris may die without pain in the terminal illness

5. There have been rare, but well authenticated cases of true angina pectoris, which have had an intercurrent attack of dilatation of the heart, and which have thereafter been free from anginal attacks, which beforehand always occurred with any exertion.

6. When the pain is controlled, the patient still dies.

I am disposed to think that Heberden was right in regarding the pain as a phenomenon of muscular contraction, but rather of separate bundles or groups than of an entire chamber; that the pain of angina pectoris, mild and severe, and of pseudo-angina are alike in character; that they are analogous to the pain of pylorospasm and intestinal colic; that they may arise from any interruption of the orderly, rhythmic flow of the myocardial contractile wave, which may arise either from anatomical conditions within the heart or from reflex impulses from without.

DR. W. A. PLECKER, State Department of Health, *Richmond:* We are all interested in heart disease, because it is the most frequent cause of death. We are interested, also, because it is one of the diseases causing an increasing number of deaths. That, we believe, is due largely to the fact that deaths of infants and young people are being prevented, and that we now have more persons in the age class beyond fifty, during which period they are more susceptible to death from heart disease. There is, therefore, some doubt as to whether the number of deaths from heart disease is really increasing, or whether the increase is only apparent.

What I want to speak of now, however, is the difficulty which statisticians have in securing accurate statistics, and of the difficulties that our office, the Bureau of Vital Statistics, has. There are few, if any, causes that give us more trouble to properly classify than heart disease. That term seems to be the dumping ground for all uncertain deaths, and if the diagnosis has not been accurately and carefully made, the death may be very well assigned to heart disease, or to organic heart disease, and will pass unquestioned in our office. I want to speak of one of the chief difficulties which we have, and that is the assigning of deaths to functional affections of the heart. The use of these terms appears to go in cycles. A perfectly good term which has been discussed here in an excellent manner is coronary disease. We notice that the term coronary occlusion has come into use in the last two or three years; very few cases were so classified prior to several years ago. I take it to be a fact that coronary artery diseases are being now more fully discussed, and that the men are becoming more accurate in their diagnosis, and I expect that after this meeting some others who have not been using these terms (or not using them accurately) will begin. We notice that after such a meeting as this.

The point I want to speak of is the use of wrong terms that are simply functional. "Congestive heart failure" is the one that seems to be going the rounds now among the interns in the hospitals. The question that arises in my mind is whether we have a teacher in one of our schools who is using that term. From the highest schools right on down to the almshouses, the interns are writing "congestive heart failure" on death certificates. What they mean by that we have never been able to discover, as nearly every doctor queried seems to have a different conception of the term, and it causes us to write many letters.

Another term is "heart failure," which, of course, means nothing. We all die of heart failure; it is a terminal condition and the term should not be used. "Cardiac asthenia" and "cardiac weakness" are other terms which we regard as cloaks to conceal ignorance. What I am asking for today is more accurate terminology in heart disease. If you know that the valves are involved, give that; if not, then "organic heart disease" or "heart disease" will go, but please do not talk about "heart failure." The word "angina" should never be employed alone. There are some forty descriptive terms which may be used in connection with it, such as agranulocytic, Ludwig's, Vincent's, and particularly angina pectoris, included in the present discussion. These are the things that make our statistics inaccurate.

When men discuss statistics and quote them, I listen with fear and trembling, because I know how often these statistics are inaccurate, simply because we cannot get correct information from the men in the field.

DR. WOOD, closing the discussion on his part: Dr. Call is correct and helpful in his interpretation of my figures. Very fortunately bacterial endocarditis seems to be infrequent in Virginia.

I can not agree with Dr. Plecker. No doubt it

is important to have the death certificates conform to the old terminology, but one can hardly blame the interns of today for the use of so accurate and highly descriptive a term as "congestive heart failure."

DR. MARTIN, closing the discussion on his part: I want to add one word about the management of these cases of subacute bacterial endocarditis. They constitute one of the most distressing situations that we have to meet. These unfortunate patients live for many months, sometimes even for years. The ultimate fatal outcome is almost inevitable, although there are occasional cases that do recover. To tell the family of such a patient that he is going to die six months hence, or twelve months hence, and have that burden of hopelessness lying upon them all the time is, I think, a very cruel thing to do, though we may be tempted to do so to establish our reputation for accurate prognosis. The humane thing is to tell them that the patient has chronic progressive infection of the heart; that it is of a very serious nature, but that some of these cases recover and we hope this will be such a case. We should support them with whatever hope it is possible to give.

I also want to say a word about Dr. Plecker's suggestion. It is just as inaccurate to say that a patient dies of mitral stenosis as to say he dies of heart failure. He may die as the result of mitral stenosis, but that does not throw any light on the terminal event. I think it might be well to formulate a definition of types of deaths occurring in heart disease and to publish it among the physicians of the state, so that accurate statistics may be obtained.

DR. PORTER, closing the discussion on his part: Since I am the only person who has used the term "congestive heart failure," and am at the same time a teacher of medicine, it is incumbent upon me to define this term and to explain its usefulness. For many years it has been recognized that the terminology used in heart disease was inadequate, for the reason that it carried with it no suggestions as to the true clinical condition of the patient. To illustrate this, a diagnosis of mitral stenosis does not indicate whether the patient is moribund, or is capable of carrying on in a usual and normal fashion. If, on the other hand, the diagnosis were as follows, namely, rheumatic heart disease, mitral stenosis, auricular fibrillation and congestive heart failure, one can visualize the clinical condition of the patient and have in his possession that data necessary for sane therapy. My feeling is that the term "congestive heart failure" is a most useful one. It is a departure from normal circulatory physiology which is responsible for the admission of 80 per cent of all patients who seek medical treatment for the relief of disability induced by heart disease.

DR. PLECKER: The terms that have just been stated are no doubt very good, but the ones we have to use in our office are those prescribed by the Bureau of the Census. "Congestive heart failure" does not go back to the cause of the failure. We do not classify deaths by the terminal symptoms at all, but go back to the causes which led up to them. Take bronchopneumonia; that is a very striking illustration. In children between the ages of six months and ten years it is very often the result of measles or whooping cough or something of that sort, and we have to question every death for which that is returned as the cause, between these ages, if no statement is made as to whether it follows any other disease.

That bears out the statement I made, that we want to go back to the organic disease of the heart rather than to the terminal symptoms.

BLASTOMYCOSIS WITH REPORT OF THREE CASES

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Blastomycosis is still considered a medical curiosity by a large percentage of our profession. The idea that it is a tropical infection, occurring so rarely in our section of the country as to deserve only casual interest, is still prevalent. It is with the hope of stimulating further interest in this not infrequent disease that we are reporting three of our own cases and the methods of therapy employed.

Gilchrist in 1894 was apparently the first to demonstrate the causative organisms. He observed these in a supposed case of scrofuloderma but did not at this time recognize the true nature of the parasites he had found. Since that time many cases have been reported, nearly all these being in the white race. The disease in the colored race is extremely rare but one of the three cases herein reported was that of a colored man. The condition is not as uncommon as many believe; however, the disease is not frequently seen by the physician in general practice and, when seen, usually is not diagnosed until after consultation with a dermatologist.

ETIOLOGY: Blastomycosis is a chronic, slowly progressive, infectious disorder, due to vegetable parasites known as blastomyces. The organisms are classed with the yeasts and are rather prevalent in nature where other fungi and molds are found, as in various types of vegetation. The parasites are round, encapsulated, highly refractile organisms with a double contoured wall and usually a granular protoplasm. They vary in dimensions from that of a red blood cell to three times this size. Blastomyces can usually be found in the smears of the exudate from a lesion after this material has been treated with 10 to 30 per cent sodium hydroxide from 10 to 30 minutes, but study of several preparations may be necessary before finding them. In all suspected cases a biopsy should supplement microscopic studies of the pus, as the organisms can usually be demonstrated in the tissue sections. The diagnosis is then confirmed and at the same time it has been possible to eliminate the possibility of some other lesion, such as carcinoma of the skin, because as we shall see later, this

is one pathological entity which may be confused with blastomycetic dermatitis.

Symptoms: Little is known of the predisposing causes of the infection and any tissue of the body may be involved, but in the great majority of cases the disease begins on some exposed surface of the skin, the hands and face being common sites, though any part of the cutaneous surface may be affected. The condition is more common in men than in women, supposedly due to the fact that men are ordinarily more exposed to trauma and the infectious agents which usually enter the body through skin abrasions. The primary lesion on the skin nearly always consists of a small papule or papulopustule. These usually increase in number and spread peripherally, and frequently the area involved is several centimeters in diameter before medical aid is sought. The true nature of the process is often obscured by various remedies which have been applied by the patient in an effort to effect a cure. Crusting is always present unless some form of treatment has been instituted, and when the crusts are removed the underlying lesion is sharply demarked, has a granulomatous surface with elevated edges, and appears to be more active at the periphery where the more recent skin involvement is seen to consist of small bluish or reddish papules or minute abscesses immediately in the skin. Not infrequently healing tends to occur centrally leaving a thin atrophic scar. Occasionally, just as in one of the patients we will report, a chronic carbunculoid abscess will develop in the deeper tissues. Usually there is little pain but, when the deeper structures are involved, pain may be rather intense.

Systemic blastomycosis is not infrequent and in most patients is secondary to a cutaneous form of the disease, but cases with systemic infections have been reported in which there was no evidence of invasion of the skin by the parasites. Exclusive of the skin, the lungs are more frequently involved than any other tissue of the body. According to various statistics, bone infection is probably third in the relative order of the frequency of various tissue involvement. Pulmonary or osseous infection usually gives roentgenographic evidence of its presence but sputum examinations and biopsies from the affected bone may be necessary before a final diagnosis is made. A productive cough with pulmonary infection and pain accompanying a bone lesion, along with some temperature and leukocytosis, all of which tend to run a chronic course, impel the physician to make further investigations which usually lead to the correct diagnosis.

Differential Diagnosis: Cutaneous blastomycosis must be differentiated from sporotrichosis, the vegetating type of cutaneous syphilis, tuberculosis of the skin, carcinoma and drug eruptions, especially those caused by bromides or iodides. Sporotrichosis primarily involves the subcutaneous tissues forming subcutaneous abscesses, the epidermis being involved only rarely. Cutaneous vegetating syphilides most often occur near mucous membranes or moist surfaces and other manifestations of syphilis are usually present. A positive blood Wassermann is of value but it must not be forgotten that a patient with syphilis may also have blastomycosis. Cutaneous tuberculosis progresses more slowly and the typical apple-butter nodules are ordinarily present at the periphery of the lesion. Skin carcinoma presents a firm, rather smooth, elevated and rolled margin and the minute, multiple discrete abscesses seen in blastomycosis are usually absent. Drug eruptions, usually, but not always, are more generalized and the patient will give a history which should avoid confusion and, finally, as stated above, the demonstration of the parasites in the exudate and tissues from a suspected case of blastomycosis is conclusive when found by a competent pathologist.

Case Reports

Case C14,261.—Referred by Dr. W. A. Reese, of Petersburg, Va. A white married woman, 27 years of age, first noticed a small bluish abrasion on the lateral aspect of the right leg eight months prior to the time she was referred to us for treatment. This lesion gradually increased in size by peripheral extension until it covered most of the lower third of the lateral aspect of the leg. (Fig. 1.) During the interim she had used various ointments and wet magnesium sulphate dressings without improvement. Symptoms have been rather mild until recently when pain, particularly about the deep-seated lesion on the back of the leg, became rather severe.

Ten years ago the blood of this patient was Wassermann positive on several occasions. Since that time she has received anti-luetic treatment at intervals, several injections of

neoarsphenamine having been given since the onset of her present illness, but without any alleviation of her symptoms. At the time of this writing she has been under treatment one month. She is now taking potassium iodide in ascending doses. Two roentgen ray treatments have been given and she shows marked improvement. We do not of course expect to cure such an extensive lesion in so short a time.

Fig. 1.—A large lesion typical of blastomycetic dermatitis with several smaller more recent lesions about it. The arrow indicates a deep carbunculoid lesion on the back of the leg.

Case C9138.—Referred by Dr. J. Bolling Jones, of Petersburg, Va. A colored man, age 35, gave a history of having noticed a small papule on the right side of his neck two years prior to the time he was referred to us. The disease spread peripherally and five months later involved the left cervical region. Extension continued and, when first seen in our office, he presented a symmetrical, granulomatous lesion, involving both sides of the neck and covered by a brown crust. (Fig. 2-A.)

A section of tissue removed at the time of his first visit was reported by a good pathologist as a squamous cell epithelioma, superimposed on a tubercular dermatitis, which illustrates the difficulty of diagnosis in these cases. Another section from this same case was reported by a different pathologist as blastomycosis and the organisms were found at this time in the tissue.

X-ray therapy was immediately instituted and in a period of three months six treatments were given with marked improvement. (Fig. 2-B.)

Due to his financial condition he found it impossible to pay for his transportation to and from our office and therefore he was referred to a government hospital for further treatment and was reported entirely well after several applications of carbon dioxide snow.

We dare not contend that the results ob-

Fig. 2.—A. The granulomatous lesion on the right side of the neck showing a border with sharp demarcation is quite characteristic of blastomycosis. An arrow indicates the edge of the lesion on the left side of the neck.

Fig. 2.—B. After six roentgen treatments there is marked regression. The central whitish appearance represents a marked degree of scar tissue formation. No iodide or other medication was employed to obtain the above result.

tained in this case were due to our own efforts, but since marked improvement was noted after six roentgen treatments, and knowing that the effects of roentgen therapy are often delayed for a considerable time, we cannot avoid thinking that possibly the results were, at least in part, derived from our own efforts.

Case C13,313.—Referred by Drs. Tredway and Neal, Emporia, Va. A white man, age 43, noticed a small nodule on the under surface of the right side of his chin five months preceding the time he was first seen by us. The lesion progressed and soon became an ulcer with a granulomatous surface covered by a brown crust. When referred to us the lesion

Fig. 3.—A. The lesion with well defined borders, the whole covered with a brownish crust, has an appearance rather typical of blastomycosis.

Fig. 3.—B. Two months after first X-ray treatment. Only three treatments were given, and no iodides. The endotherm was used only to help remove the crusts and hair from the surface of the lesion.

was about five centimeters in diameter. (Fig. 3-A.)

At this time he was treated with X-ray and a section of tissue removed for biopsy. In this section blastomyces were found by the pathologist. Following this the patient was given two other doses of roentgen ray at weekly intervals. Two weeks later the granulomatous surface was removed with the endotherm only for the purpose of destroying the superficial diseased tissue. He was seen at weekly intervals following this treatment and one month later was entirely well.

Treatment: Various therapeutic measures have been advocated for the treatment of blastomycosis, but the best results in most of the reported cases seem to have followed the administration internally of massive doses of potassium iodide supplemented by roentgen therapy to the local lesion. We recommend that iodide therapy begin with relatively small doses; about 15 minims of a saturated solution of potassium iodide three times daily, this dose to be increased about three minims daily until the limit of tolerance is reached. Adults can frequently take as much as 300 to 500 minims daily without toxic manifestations. The amount of radiation and the frequency with which it is given varies according to the judgment of different radiologists. In two of our cases roentgen therapy was employed alone in an effort to evaluate the efficacy of this agent. Both of these patients were entirely well after a relatively short time.

Other therapeutic measures have been advocated, but these have afforded less gratifying results. Complete excision of the diseased tissue has been practiced in some cases with success. Electrocoagulation and freezing with carbon dioxide snow have been used to advantage in a few patients. Some men have reported good results following the use of arsphenamine intravenously, but this was used in one of our cases on the basis of her luetic condition, without any improvement. Iodine, gentian violet and acriflavine, locally, and copper sulphate both locally and internally, have also been suggested but none of these methods have been found to be as valuable as the com-

bination of potassium iodide and X-ray; however, it would seem wise to resort to one or more of these procedures should any individual case prove resistant to iodides and radiation.

Systemic blastomycosis presents a much more serious problem, both as to prognosis and therapy, because nearly all of these cases terminate fatally in spite of all efforts at treatment. In the care of such cases the institution of massive doses of iodides as described above, along with deep X-ray therapy, would seem to be the method of choice. In certain clinics gentian violet in doses of .15 to .3 gm. in the strength of .5 per cent in normal saline, administered intravenously, has apparently given good results in certain cases. This has also been used to supplement treatment with iodides and X-ray but the cases treated in this manner have been too few to warrant definite conclusions.

Summary

1. Blastomycosis is more frequent than we ordinarily suppose.

2. Three cases of the cutaneous infection are reported.

3. The treatment of choice is potassium iodide internally and roentgen therapy locally.

4. Our experience with these cases indicates that the cutaneous lesions may be cured by roentgen therapy alone.

5. Nearly all cases with skin involvement alone respond readily to treatment. Systemic infection is eventually fatal in nearly 100 per cent of the cases.

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Medical Arts Building.

VARICOSE VEINS AND THEIR TREATMENT.*

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In considering the etiology of varicose veins there are various theories advanced, none of which explains their development in all cases. The most ancient and honored is that of back pressure, developing as a result of insufficiency of the valves of the iliac vein gradually progressing from above downward, dilating the vein and separating the valves as the unsupported column of blood increases. If the occupation of the individual is such that there is frequent increase in intra-abdominal pressure, such as lifting, etc., dilatation becomes more extreme and progresses more rapidly. This theory, however, does not explain varices developing at or below the knee without apparent involvement of the saphenous vein above the knee.

I will not attempt to settle the theories advanced as the etiological factors in the production of varicose veins. It would be well, however, to tabulate them so that we may be able to get a clear idea of the various causes. First: back pressure. Second: congenital insufficiency of the valves. Third: syphilis has been considered the chief cause by some authorities. Fourth: infection, which may be embolic or hematogenous, or may be by direct extension from the surrounding structures, causing the development of a low grade phlebitis. Fifth: endocrines have also been held responsible for their development. From my observation, there is a marked predisposition to their development as a result of heredity.

None of these theories explain all cases of varicose veins, and there is probably some truth in all. The truth probably lies in two or more factors entering into the etiology in each individual case.

Types of varicose veins as classified by Berntsen are: Type 1: isolated saccular varix along the course of the great saphenous vein; Type 2: the fully developed tortuous mass of varices along either of the saphenous veins; Type 3: the uniform dilatation of the larger trunk; Type 4; venous bursts, usually stellate and very superficial.

Before considering the treatment of any case of varicose veins we must assure ourselves, as far as possible, that the symptoms complained of are due to the varices and that relief may

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be expected by proper treatment. Varicose veins secondary to pelvic tumors should not be treated until the apparent cause has been removed. Flat feet frequently are responsible for aches and pains in the calves of the legs, which are frequently attributed by the patient to varicose veins. Treatment of the veins, together with that of the feet, will often give great relief. At times, though infrequently, Buerger's and Raynaud's disease coexist with varicose veins. These must be definitely excluded. Often a patient with arthritic changes attributes the pain to existing varicose veins, and the prognosis as to relief must be guarded. Rheumatic or neuritic pains should be differentiated from that due to varicose veins. Compensatory enlargement of superficial veins occurs as a result of thrombophlebitis blocking the deep veins. This is, of course, a positive counter indication for treatment.

Testing of the patency of the deep veins is best done by the Trendelenberg test and Perthes' test. The chief counter indications for treatment of varicose veins are: first, a chronic deep thrombophlebitis, whether recent or comparatively ancient, giving a history of swelling of the lower extremities following childbirth, pelvic infection, operation, or typhoid fever; second, of course any acute phlebitis; third, arteriosclerosis is regarded by some as a counter indication; fourth, diabetes. Any patient with either of the latter two conditions should be carefully studied before considering treatment.

As to the method of treatment to be adopted, until 1926, surgical treatment was very much in vogue. Ninety per cent of varicose veins receiving any curative treatment were treated by operative removal, either by the Mayo or Babcock operation. McPheeters, in a questionnaire from 119 surgeons, gathers a series of 6,771 cases operated, with a total operative mortality of .94 per cent, average days in the hospital 15.1, average number of days from work 34.6, recurrence in one year 5 per cent, in five years 10.2 per cent. Only twenty-nine surgeons reported on recurrences in the one year period, and only twenty-two reported in the five year period. Since 1926, when the advantages of the injection treatment were called to the attention of the profession, it has been used almost exclusively, due to the fact that it is just as efficient, the patient's occupation is not interfered with, the expense, as to hospital and loss of time from work, is much less, there is less danger of development of pulmonary or cerebral embolism, and there seems to be a smaller percentage of recurrences.

Treatment of varicose veins by injection of a sclerosing solution was first suggested in 1853, and since then has had periods of popularity and decline. Many different solutions were used with widely varying results. McPheeters has probably done more to popularize this treatment in America by calling attention to its simplicity, efficiency, and almost total absence of mortality, and practically no loss of time from occupation.

The solutions to be used for sclerosing varicose veins are: first, sodium chloride, 20 to 30 per cent, which is very effective in producing sclerotic changes in varicose veins, using from 5 to 10 c.c. at an injection, but has been abandoned by most men doing this type of work on account of the extreme cramp like pain and the production of slough by a small amount leaking out of the vein; second, glucose, dextrose, or invert sugar, used to a considerable extent in 50 to 70 per cent strength, has the advantage of being of low toxicity, producing only slight cramp, and seldom, if ever, producing slough, but the main objection is that it is not as efficient in producing results as other solutions. If it does produce thrombosis there is more frequent recanalization than in other solutions that have been used. Equal parts of glucose, 50 per cent, and sodium chloride, 30 per cent, or invert sugar and sodium chloride, in the same percentage, are at present used to a great extent. I have found this mixture very efficient in some cases of larger varicose veins, and in a few cases absolutely inefficient. I have had several recurrences. The cramps produced are very moderate, if any, and there is practically no toxicity. It is apt to produce slough if any leaks out of the vein, and requires a larger needle to get the solution in and out of the syringe. There are no counter indications to its use. Third, a 2 per cent solution of quinine and urethane, put up in ampoules by various commercial houses, has proven most satisfactory in my hands. The amount injected is from ½ to 2 c.c., beginning with the smaller quantity to determine the patient's susceptibility to quinine. The patient should be asked whether or not he has had toxic symptoms by the use of quinine taken by mouth. It is about 90 per cent efficient, is low in toxicity, except in those who have an idiosyncrasy, and only produces a moderate degree of inflamma-

tory reaction in the vein. It will, however, produce slough if any leaks out of the vein. It should not be used during pregnancy, and I do not believe more than one vein should be treated with this solution at the same sitting. It is most efficient in smaller and moderate sized veins. In the larger veins, however, it is not as efficient on account of the small bulk which is used and the dilution which takes place by the blood already in these vessels.

In my experience the most efficient solution to be used, especially in the larger veins, is a 5 per cent solution of sodium morrhuate, using from 2 to 5 c.c. at a dose, beginning with the smaller dose. I have found it is just as efficient as any solution used. It has a low or absent toxicity and produces very moderate cramps, if any. It does produce, in certain cases, considerable extension and venitis of Sicard, or sclerosing phlebitis. It does not produce slough which is one of its great advantages. I have seen the whole internal saphenous vein obliterated from one injection of 5 c.c., given just above the level of the knee. Two cases which I have had of this character had considerable soreness for about one week, and the loss of time was only one day in one case. Both men were clerks, necessitating being on their feet ten hours a day. I have used this solution in moderate sized veins, in small quantities, and it has proven very efficient. It has only been in use in my hands for six months and it is too early to decide upon the percentage of recurrences or recanalization, but from the feeling of the veins, three months after injection, which resembles that of a fibrous cord, I hardly believe it is possible that recanalization should occur. I have had no experience with the use of sodium jacarrolate, sodium salicylate, or mercury iodide, but, from reading literature on the subject, my impression is that these are used to a very limited extent at this time.

Histological changes which take place in injected veins, as given by Bazelis, following the injection of mercury biniodide, which probably corresponds very closely to those changes found in any efficient sclerosing solution, are noted as follows: After twenty-four hours the endothelium was swollen and partly separated from the remainder of the intima. There was no clot or thrombus and no leukocytic infiltration. After forty-eight hours the endothelium was unrecognizable and the internal surface of the vessel was covered by a deposit of fibrin. After seventy-two hours there was a clot entirely obliterating the lumen. In eight days the clot had been penetrated by newly formed connective tissue, rich in capillaries. After fifteen days the process of organization was not yet complete, but the muscular layer was described as almost completely sclerosed. After three months the vessel was greatly diminished in size and transformed into a fibrous cord, only a few isolated muscle fibers being recognizable.

Technique of Injection: Almost everyone who does a considerable amount of treatment of varicose veins by injection of a sclerosing solution develops his own technique. Some use injection between tourniquet, some use one tourniquet, some use venule occluder, which is a circular ring making pressure above and below, and the injection is made between the points of occlusion; some use the recumbent position, others with the patient in a sitting position with the legs dependent, and in some clinics practically all veins are injected with the patient in the erect position. I feel that all these different methods have their advantages and disadvantages. The method used will differ with the size of the vein, its location, the ease of entrance, and the solution used.

It is necessary to have on hand a 2 c.c. and a 5 c.c. syringe, preferably Luer, together with a needle of 22 or 24 gauge, preferably with a short bevel, as there is less danger of penetrating both walls of the vein than when using a needle with a long bevel. In the larger veins in the thigh it has been our custom to mark the course of the vein and the point selected for injection with mercurochrome or iodine, while the patient is in the erect position, then in a recumbent position, using tourniquet if necessary, inserting the needle in the vein, elevating the extremity in order to empty, as far as possible, the blood out of the vessel, and bring the solution in direct contact with the intima as undiluted as possible, and carefully injecting the solution. The needle should be left in for a minute and as it is withdrawn firm pressure made upon the point of injection. The solution which has given the best result in veins of this character, and using this technique, is sodium morrhuate. It is found that in some cases one or two injections only are necessary to sclerose the saphenous vein from the level of the knee

up to Scarpa's triangle. In veins of moderate and very large variety below the knee the same technique is used. In veins of the small and moderate variety my custom is to inject with the patient in the erect position, without the use of tourniquets, using ½ to 2 c.c. of quinine and urethane. In using this solution it is very important that blood should be aspirated from the vein before injection, and during the time of injection blood should be aspirated several times to be sure the needle has not slipped out or been pushed through the vein. It takes very little leakage of quinine and urethane to produce slough whose healing is usually a matter of two to three months. The area involved is usually very small and the discomfort suffered little, if any.

COMPLICATIONS: Embolus: a few cases of pulmonary or cerebral embolus following injection treatment of varicose veins have been reported, but the proportion developing from this form of treatment as compared with that of operative treatment is very small. The fact that the thrombus is produced intentionally by a sclerosing solution and is densely adherent to the wall of the vein, and later becomes thoroughly organized and ultimately converted into fibrous tissue makes one feel that the minute percentage given in the statistics is thoroughly justified. The fact that tens of thousands of injections have been given without fatality in a number of the larger clinics, such as Mayo, McPheeters, and De Takats, gives us confidence and assurance to continue treatment in view of the results obtained.

Sclerosis phlebitis, or venitis as termed by Sicard, should not be regarded as a complication; in fact, it is one of the favorable things which may occur, as a considerable length of vein becomes sclerosed as a result of a single, or possibly two, injections. It produces some pain and discomfort for a few days but very seldom requires a person to be in bed more than a day or two at a time. Application of heat gives relief. Sloughs occur as a result of error in technique, chiefly caused by going through both walls of the vein, injecting the solution just outside the vein, or failure to apply pressure on the vein after removing the needle, allowing considerable leakage.

Septicemia has been said to have occurred following this treatment. This may be due to lack of proper sterilization of the skin or instruments, or the lighting up of a pre-existing infective thrombophlebitis. The thrombus formed as a result of a sclerosing solution is an ideal media for the growth of any septic bacteria which may be introduced or already present in the wall of the vein.

The chief, and one of the most disabling, complications which can result from the presence of varicose veins is ulcer, which at times is very extensive and very disabling. Ulcers usually occur at an age when a person's earning capacity is at its maximum, and in those patients whose occupation requires being on their feet eight to ten hours a day. It is due to the failure of the blood to return in a normal way to the general circulation, causing back pressure and more or less stasis in the extremity, with accompanying edema. The skin is frequently thick and copper colored, and a chronic dry eczema may be present. In many cases it is impossible to see the veins which are feeding the area. At times the venous channels can be felt in the brawny skin and injection made in this way. Often it is necessary to bandage the extremity firmly for a few days in order to lessen the amount of induration and edema, to make visible the feeder vein. This may be done by Unna's paste boot or tricoplast bandage. Sponge rubber, bandaged firmly over the ulcer with an Ace bandage, and the patient made to exercise as suggested by McPheeters produces very good results. My personal preference is several layers of gauze over the ulcer, and a firm tricoplast bandage left on for a week. In this way considerable exudate will come through the dressing which can be wiped off, but the bandage should not be removed under five days, and if possible should be left on the full week. It is then removed, the ulcer cleaned, and the bandage replaced. If the feeder veins are sclerosed, and this treatment followed out, it is found that the ulcer will heal in a comparatively short time.

Medical Arts Building.

CERTAIN FEATURES OF THE ETIOLOGY OF GOITER.*

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Under this restricted title two factors will be considered as causes of goiter.

1. Deficiency of solar radiation as tending especially to simple or endemic goiter.

*Read before the Norfolk County Medical Society, February 20, 1933.

2. Depression of the rate of tissue oxidation as tending especially to exophthalmic goiter.

Doubtless both, in the degree of intensity with which they prevail under natural conditions, affect only those individuals with a predisposing cause such as hereditary influences or a faulty diet. The nature and scope of the first factor (deficient solar radiation) is such that it may affect the thyroid gland through the medium of the air, soil, food, drinking water or the skin of the animal organism. It may operate by causing an absolute or a relative deficiency in the supply of iodine, or by causing a disturbed metabolism of iodine. McClendon's[1] study of iodine in the drinking water of the United States, Hercus, Benson, and Carter's[2] study of the iodine content of the soil of New Zealand, McCarrison's[3], and Stott and his coworkers'[4] studies of iodine supply in India, all furnish information which may be compared with available meterological data to show that areas of deficient iodine (and of goiter prevalence) tend to be also areas of deficient solar radiation[5].

The nature of the second factor (depressed rate of oxidation) is such that it may result from a variety of causes. Cyanides have this effect, and the metabolic rate varies also with conditions of temperature and humidity.

Experimental evidence as related to animals will be quoted and statistical evidence as related to man will be presented to suggest that deficient solar radiation tends to goiter, that there are demonstrable relationships between non-toxic and toxic goiter, and that conditions that may tentatively be assumed to depress the rate of tissue oxidation tend to the development of goiter and exophthalmos in animals and in man tend to an increased proportion of exophthalmic to simple goiter.

That lack of solar radiation tends to goiter is not a new idea. Quoting McCarrison[6]: "In the past many observers (Saint-Lager, 1867), have attached to want of sunlight an important influence in the causation of goiter. More recently it has been stated by Aschoff (1927) that the quantity and quality of exposure to sunlight has an influence upon the development of the thyroid gland and must be taken into account in considering the genesis of goiter. Bernhard (1927) has also emphasized that lack of light may contribute to the causation of goiter."

Experimental Production of Hyperplastic Goiter by Deprivation of Ultraviolet Wavelengths of Light

As evidence of the influence of deficiency of ultraviolet radiation in the production of goiter is cited the following abstract of the experimental work of Bergfeld[7]:

> The histological changes in the thyroid of rats were studied following exposure of the animals to different parts of the spectrum. One group received radiation cut off at 3,500 Angstrom units; another group received radiation cut off at 3,100 A°., and a third group received radiation as low as 2,600 A°. For control purposes some rats were kept in the dark. Since previous experiments carried out in different places revealed discrepancies in the results, animals were treated alike in Bern, Freiburg and Berlin. The periods of observation in each group ran from 21 to 42 to 63 days. In some cases extracts were made from the skin of the rats exposed to ultraviolet light of long or short wavelength, and then injected into the animals kept in the dark.
>
> All rats, regardless of the place where they were treated, if they were kept in the dark or had been exposed to radiation cut off at 3,000 A°., showed identical histological changes in the thyroid. They consisted in an increase of the follicles, lack in colloid, and an extremely high follicle epithelium. These findings could not be correlated with the metabolic rate. In animals treated by ultraviolet rays down to 2,800 A°., no similar changes could be observed. Those rats which had been kept in the dark and then injected with skin extract obtained from animals exposed to short ultraviolet rays showed a definite improvement in the histological picture, as compared with the uninjected rats or rats which had been injected with extract obtained from animals exposed to ultraviolet rays of long wavelength.
>
> The author believed that he had proved, therefore, that the described changes in the thyroid of rats can be prevented or decreased by ultraviolet rays between from 3,100 to 2,800 A°.

Statistical Evidence of the Influence of Lack of Solar Radiation as a Cause of Goiter

An examination of the data available for the United States, India, New Zealand and South Carolina[5] led to the same conclusion with respect to each, that deficiency of solar radiation tends to a deficiency of the iodine content of the thyroid gland due to a lack of irradiation of the air, soil, food, drinking water or skin of the animal organism, tending to an increased prevalence of goiter.

The data here presented will be limited to the United States except for two references to India.

Chart 1 shows the distribution and prevalence of simple goiter in young men (third decade) in the United States as reported by the Draft Board. In its broad outlines it

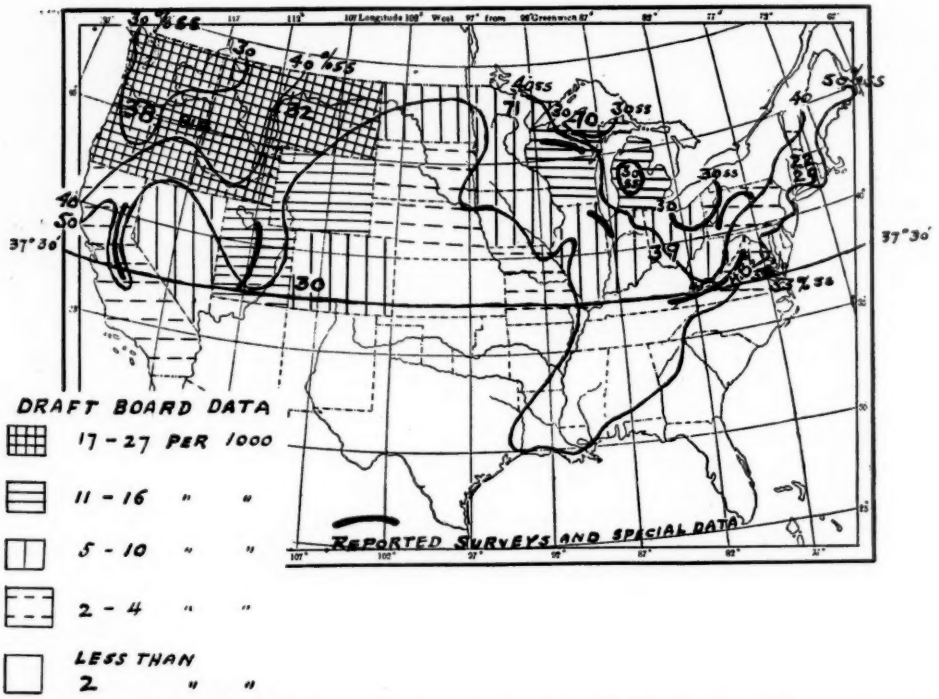

Chart 1.—Hatching values are shown in the chart. The curves, as for *30%SS*, indicate that the areas enclosed receive for the months of December, January and February an average of less than the indicated percentage of the possible sunshine according to data in Bulletin W of the United States Weather Bureau, covering the observation periods from the establishment of the stations to 1920, inclusive. The figures, as *53%SS*, within the State of Virginia are intended to show a percentage of the possible sunshine of 53 per cent for the coastal area; 52 per cent, tidewater; 48 per cent, Piedmont, and 45 per cent, mountain area. Other figures inserted within the boundaries of states represent the highest percentage of goiter found in school girls in any area of the state included in special surveys, and with the exception of the figure *39* for Cincinnati, the location of the figure within the state boundary indicates the area of greatest prevalence observed within the state. The heavy black inserts also have the same significance as to the relative prevalence within the state. The sources of these data are as follows: Oregon (Cascade Mountains), Olesen (Pub. Health Rep. 42:2831, 1927); Montana (Rocky Mountains), Foard (Pub. Health Rep. 39:2354, 1924); Colorado (Rocky Mountains), Public Health Report 40:1, 1925; Minnesota, Olesen and Clark (Pub. Health Rep. 39:2561, 1924); Michigan, Olin (J. A. M. A. 82:1328, 1924); Cincinnati, Olesen (Pub. Health Rep. 39:1777, 1924); Connecticut, Olesen and Taylor (Pub. Health Rep. 41:1685, 1926); Massachusetts, Olesen and Taylor (Pub. Health Rep. 42:804, 1927); California (Sierra Nevada Mountains), Illinois, and Pennsylvania (Appalachian Mountains), McClendon and Hathaway's may (ref. 5); Utah (Rocky Mountains), McClendon (Physiol. Rev. 7:189, 1927); Wisconsin, Olin; Virginia (Appalachian Mountains), information common to physicians in the state. (This chart and legend appeared in **Archives of Internal Medicine**, Vol. 50, July, 1932, pp. 76-123.)

shows that goiter is a relatively slight problem in states below latitude 37° 30′ N, an area in which the solar radiation of the winter months is relatively great. It shows the heaviest incidence of goiter in the Pacific Northwest, where deficiency of solar radiation is greater than for any other part of the country except in limited areas about the Great Lakes. In the region of the Great Lakes the incidence of goiter, according to the Draft Board, is next to that of the Northwest, and, indeed, according to the studies of the United States Public Health Service, greater. The chart shows a definite tendency to correlation between prevalence of goiter and deficiency of winter sunshine.

Two interesting observations have come from India, one experimental and the other statistical, relative to the influence of "the rains" in the production of goiter.

McCarrison[8] whose experimental observations did not support the influence of darkness in the production of goiter in rats, nevertheless wrote as follows:

"Effect of Rainfall and of Season on the Goitrogenic Potency of Cabbage

"Rabbits were fed during different months of the year on a diet of fresh, raw cabbage and water for a period of fifty-six days. At the end of each experiment they were killed by air-embolism and their thyroid glands removed and weighed. The size of the gland relative to that of the body—the 'r'-value, obtained by dividing the thyroid-weight by the body-

weight (McCarrison and Madhava, 1932)—was then determined for each animal and the mean value in each experiment calculated. These mean values are set out in Table I against the total rainfall for the months in which the experiments were carried out."

TABLE I

SHOWING THE TOTAL RAINFALL AND THE SIZE ('r') OF THE THYROID GLAND AT DIFFERENT MONTHS OF THE YEAR IN RABBITS FED ON A DIET OF FRESH RAW CABBAGE AND WATER

Number of Experiment	Experiment Carried Out During the Months of	Total Rainfall in Inches	Mean 'r'-Values of the Thyroid Gland: mg. per 1,000 g. of Body Weight
I	November and December.	39.5	749
II	January and February...	1.0	252
III	March and April.....	2.6	100
IV	May and June.....	12.7	224
V	July and August.....	3.0	157
VI	September and October..	32.5	272
VII	November and December.	11.5	549

"It will be noted from the graph (Fig. 1) (not reproduced here), prepared from Table I, that the curve of 'r' values—i. e., of thyroid-size—follows closely upon that of the rainfall. The closeness with which it does so is remarkable and can hardly be regarded as accidental, though further observations are needed to establish the constancy of the association."

How this effect is mediated is not at present known. Indeed, certain results that are apparently contradictory have been reported by others. Webster[9], after injecting rabbits with 5 mg. potassium iodide one week prior to the beginning of the experiment, found that carbon arc irradiation of finely divided cabbage increases the goiter producing power of the cabbage. McCarrison's observation would appear to be more in accord with the generally observed increased potency of "winter cabbage" as compared with "summer cabbage."

The gap constantly to be recognized between animal experimentation and disease in man is, with respect to the observations in India, somewhat bridged over by the report of Stott and his coworkers[4]. These authors presented a curve showing the monthly goiter attendance at the Banpur Hospital, 1925-1926, varying from approximately 20 in August to 799 in January, and stated: "New goiters especially arise, old goiters enlarge and all goiters most rapidly develop during and after the rains, i. e., during October, November and December. . . . Attendance of out-patients at the dispensaries for goiter increases largely during the months following the rains."

EXPERIMENTAL PRODUCTION OF HYPERPLASTIC GOITER WITH EXOPHTHALMOS BY AGENTS WHICH LOWER THE RATE OF OXYGEN CONSUMPTION

Webster, Clawson and Chesney[10] reported that in 45 rabbits made goitrous by feeding cabbage there was an average heat production of 16.6 per cent lower than in "normal" rabbits, but certain animals, for which no cause of death could be found, showed an average increase of approximately 20 per cent in their metabolic rate during a period within two weeks of death. Iodine administered to goitrous rabbits caused a marked increase in metabolic rate, rapid emaciation, and in most instances, death.

As evidence of the production of goiter with exophthalmos by agents which retard the rate of oxygen consumption is cited the following abstract of experimental work of Marine and his coworkers:

Following upon the observation of Webster and others that there are seasonal, annual and geographic variations in the goitrogenic power of cabbage, Marine made a search for the factor in cabbage that stimulates thyroid hyperplasia in rabbits. The ether extract was found powerful. The mustard oils have given negative results. In the distillation of mustard oil from mustard meal cyanide is carried over. Organic cyanide has been extracted from three of the Cruciferae by steam distillation.[11]

Several of the organic cyanides when injected subcutaneously into rabbits daily for three or more weeks produce thyroid hyperplasia. Methyl cyanide produces the greatest thyroid reactions, and young rabbits are more reactive than adults.

Chronic bilateral exophthalmos has occurred in a significant number, having developed as early as the twentieth day. Only moderate degrees of exophthalmos have been observed. It occurs earliest in those rabbits which develop thyroid hyperplasia the quickest and appears to be proportional to the degree of thyroid hyperplasia. When exophthalmos is developed the rabbits become nervous and fidgety.[12]

Both Dr. Joseph L. Miller and Dr. Marine interpreted the reaction as an effort on the part of the thyroid to counteract a block of tissue oxidation by cyanogen.[11]

It would seem, therefore, that cabbage feeding tends to produce goiter in rabbits and that this goiter is characterized by lowered metabolism; that the metabolism may be increased and the condition rendered toxic by administration of iodine; and that cyanide produces goiter, often with exophthalmos and nervous manifestations. These results may be expressed thus:

Iodine converted cabbage-goiter into a toxic

condition, but this is not cited here as an instance of the influence of a depressor of the rate of oxidation. Cyanide, an agent which blocks tissue oxidation, probably the active principle in cabbage, produces exophthalmos in proportion to the promptness and degree of thyroid hyperplasia it produces.

The facts suggest as a possibility that the influence of (a) cabbage plus iodine and (b) a concentration of the active principle of cabbage, cyanide, both result in toxic goiter in rabbits.

In the United States, in the male sex and in the third decade, according to the data of the Draft Board[13], the prevalence of simple goiter and of exophthalmic goiter* in the different areas of the country is of the same general order for the two diseases. Both are highest in the Pacific Northwest and lowest in the Atlantic Southeast. This is seen in the chart† (chart 2, section 2), curves B and C. It is

*The classification of the United States Draft Board did not include a distinction between exophthalmic goiter and toxic adenoma. All cases of goiter with toxic symptoms appear to have been grouped under the head of exophthalmic goiter.

†In the original article[16] the data for all states of the United States were shown. The arrangement of the states was according to the ascending order of prevalence of total goiter (simple and exophthalmic), requiring for purposes of publication division into three sections. In the selection of section 2 for the purpose of illustrating this article, it follows that the states included in the section are in the intermediate group with reference to the prevalence of total goiter. Other results of the selection are that climatic conditions mean for the United States are here represented, and the section illustrates best what the article is intended to show.

Statistical Evidence of the Influence of Temperature and Humidity on the Ratio of Simple Goiter to Exophthalmic Goiter

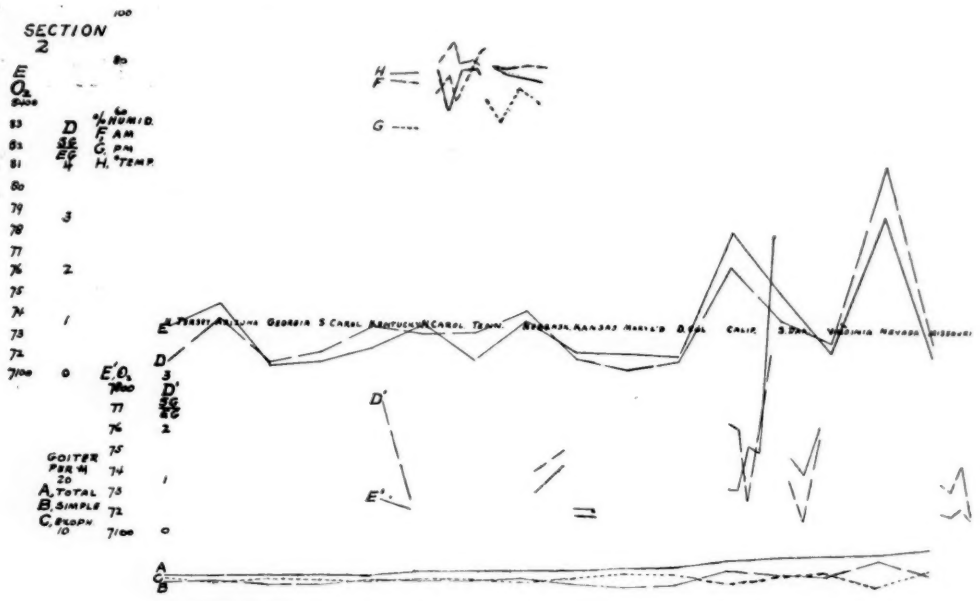

Chart 2, Section 2.

The curves represent:

A—Total goiter, ratio per 1,000 men, by states (continuous line).
B—Simple goiter, ratio per 1,000 men, by states (long dash line).
C—Exophthalmic goiter, ratio per 1,000 men, by states (short dash line).
D—Ratio of simple goiter to exophthalmic goiter, by states (long dash line).
D'—Ratio of prevalence of simple goiter to exophthalmic goiter, by sections of states (long dash line).
E—Normal oxygen consumption mean for July (continuous line).

The sources of data for this curve are as follows:

(a) For temperature mean for July and for relative humidities mean for July, Bulletin W, U. S. Weather Bureau, using for each state the data for all stations reporting from the state. Mean July relative humidity is determined by taking the mean of morning and evening relative humidity. In the central area there is an average fall in humidity from morning to evening of approximately 20 per cent.

(b) "Effective temperatures" have been determined by applying the climatic data just described to the standards as figured by Huntington,[14] and these have been translated into figures for oxygen consumption of normal men for varying effective temperatures according to the report of McConnell, Yaglou and Fulton[15].

E'—Normal oxygen consumption mean for July, by sections of states (continuous line).
F—Relative humidity at approximately 8 a. m. mean for July (long dash line).
G—Relative humidity at approximately 8 p. m. mean for July (short dash line).
H—Temperature mean for July (continuous line).

further illustrated by the figures for the States of Washington, Missouri and Florida (table II).

TABLE II
GOITER, RATIO PER 1,000 MEN

	Goiter, Ratio Per 1,000 Men		Total
	Simple	Exophthalmic	
Washington (Northwest)	23.40	9.42	32.82
Missouri (Central).....	3.99	4.80	8.79
Florida (Southeast).....	0.25	0.66	0.91

These ratios would suggest that measures which prevent simple goiter may have an important bearing in the prevention of exophthalmic goiter. There would seem to be here a promising basis for further investigation of the relationship between non-toxic and toxic goiter.

When the exact ratio of simple goiter to exophthalmic goiter is examined, the ratio is found to be reversed in the Northwest as compared with the Southeast. The ratio of simple goiter to exophthalmic goiter is relatively low in the Southeast as compared with the Northwest, with a resulting central area (section 2) where the ratio is approximately 1 to 1.

The question arises whether these data can be related to any known physiological effects of climatic factors. There are available reports of experimental observation of the oxygen consumption of normal men at varying degrees of temperature and humidity[15]. Thus is obtained a measure of the normal rate of metabolism for any given geographic area where the climatic factors are known and where they are within the limits of the factors experimentally observed. The experimental studies referred to do not allow for acclimation, but the results, within the ranges of temperature applicable to the United States, are in accord with the established tendency for the normal consumption of oxygen to be relatively low in warm climates.

The relatively high incidence of exophthalmic goiter in the warmer areas suggests that climatic conditions prevailing in the summer may be of more significance in the etiology of exophthalmic goiter than climatic conditions at any other period of the year. For that reason temperature and humidity conditions for July were selected for study.

Upon examination of chart 2 it is seen that the ratio of simple goiter to exophthalmic goiter (D) by states corresponds quite closely to the oxygen consumption (E) normal for the geographic area. Still more significant would seem to be the fact that the comparisons are applicable to territory represented by the subdivisions of states (D′ and E′) and to cities (not shown in the chart) reported by the Draft Board as separate units. Rate of oxidation is the essential feature in both sets of data. Increased rate of oxidation in toxic goiter under conditions of temperature and humidity that induce decreased rate in normal men represents, therefore, an abnormal reaction.

Regarding the subjects of simple goiter and of exophthalmic goiter as the goiter material reacting to the goitrogenic influence of a given area, approximately 50 per cent show exophthalmic goiter under the conditions of temperature and humidity in July mean for the United States. If the climatic conditions tend to lower oxygen consumption in normal men, more than 50 per cent show exophthalmic goiter. If the climatic conditions tend to higher oxygen consumption in normal men, less than 50 per cent show exophthalmic goiter.

SUMMARY AND DISCUSSION

Bergfeld produced goiter in rats by deprivation of ultraviolet wavelengths of light.

McCarrison observed a close relation between rainfall and the goiter producing power of cabbage in rabbits.

Stott and his coworkers reported a very great increase in attendance at the goiter dispensary at Banpur during and following the rains.

The United States Draft Board reported the distribution and prevalence of goiter in young men, and the prevalence is found to be in quite close correlation with lack of solar radiation in the United States.

Webster and others found that feeding cabbage as a large part of the diet produced goiter in rabbits and that winter cabbage was more potent in this respect than summer cabbage.

Marine and his coworkers made a search for the active goitrogenic factor in cabbage and thought it probably was cyanide. They reported that the injection of cyanide into rabbits produced goiter often with exophthalmos

and evidences of nervousness. This substance lowers the rate of oxidation of tissues.

The Pittsburgh Laboratory of the United States Bureau of Mines found that the oxygen consumption of normal men varied with temperature and humidity. Minimum levels were obtained at temperatures and humidities that prevail in summer in the southern part of the United States. This area and this season of the year, therefore, would furnish climatic conditions that would, by inference, most closely approximate the minimum levels of metabolism obtained in the experimentally conducted observations. Such an inference is in harmony with all the reported observations—to the effect that average metabolism is lower in the Southern than in the Northern States, and in the South is lowest in summer. Thus it follows that, though the experimentally observed variations in oxygen consumption under the influence of varying temperatures and humidities may not be used as an absolute measure of the metabolic rate normal to men in a given geographic area, they nevertheless afford the best available basis for a comparison of the relative rates of tissue oxidation in different geographic areas. It was interesting and suggestive, therefore, to find that the relative oxygen consumption so computed for different areas varied with the ratio of simple goiter to exophthalmic goiter, and that low rate of oxygen consumption corresponded with increased prevalence of exophthalmic goiter in proportion to simple goiter. This observation appears to acquire additional significance since Marine has shown that cyanide produces both goiter and exophthalmos in rabbits. In both instances depression of the rate of oxidation appears to tend to goiter with exophthalmos in man and in rabbits, respectively.

While the ratio of simple goiter to exophthalmic goiter in the group under discussion varied from approximately 3:1 in certain areas to approximately 1:3 in other areas, speaking now in terms of absolute numbers, exophthalmic goiter is most prevalent in areas where simple goiter is most prevalent. Where there is much of one there is much of the other. Where there is little of one there is little of the other. This correspondence in distribution and prevalence would seem to point to a common factor in the etiology of the two types of goiter. Simple goiter develops most commonly during adolescence. Exophthalmic goiter develops most commonly some ten or fifteen years later, and usually in subjects who have not developed simple goiter. If, as appears to be the case, depressed rate of oxidation favors the development of exophthalmic goiter in the potentially goitrous subject, the question arises as to whether it tends also to offset the liability to simple goiter. The data presented do not seem to offer any approach to the answer to this question.

Conclusions

The relation of solar radiation to the distribution and prevalence of endemic goiter in the United States and certain other countries is suggestive of a relationship of cause and effect which, in the light of present data, would be considered to mean that there tends to result from a deficiency of solar radiation a deficiency of iodine in the thyroid gland due to a lack of solar irradiation of air, soil, food, drinking water or the skin of the animal organism, tending to an increased prevalence of endemic goiter.

In young men, as reported by the United States Draft Board, prevalence of simple goiter tends to prevalence of exophthalmic goiter.

The incidence of exophthalmic goiter is favored by conditions of temperature and humidity which tend under experimental conditions to decrease the rate of tissue oxidation.

Through some unknown mechanism these climatic conditions tend to activate in the subject of exophthalmic goiter substances which increase the rate of tissue oxidation or which inhibit the activity of substances normally acting as a brake on the rate of tissue oxidation.

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VACCINE TREATMENT IN CHRONIC ARTHRITIS.*

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Arthritis, or rheumatism, is one of the oldest and most widespread of all diseases. Many of the skeletal remains of prehistoric man, including the Pithecanthropus erectus, which is supposed to date back at least five hundred thousand years, show the changes of arthritis. Frequently apical abscesses or pyorrhea are associated with the evidences of arthritis. Within historical times some of the earliest medical references are made to arthritis. It is the most frequent pathological condition recognized in studying Egyptian mummies, some of which are almost five thousand years old. It therefore appears that arthritis is not only as old as civilization, but dates back much farther toward the time of the advent of man.

Since the discovery of printing there have been many volumes published on arthritis with numerous references in other books. It was recognized as a general systemic infection long before the time of Harvey, and the opinion was expressed that the treatment must be general rather than local.

For generations it has been taken for granted that a certain large group of people will be crippled beyond all economic usefulness and suffer for years with rheumatism. Though this was considered deplorable, no great effort was made to remedy the condition. Life insurance statistics show us that arthritis is productive of more economic loss of time and disability than any other one cause. In spite of this fact, no exhaustive effort has been made by the medical profession to learn the cause and cure of the disease, although commissions and foundations for the study of tuberculosis, syphilis and cancer have multiplied and special institutions for their treatment are without number. I do not know of any such foundation for the study of arthritis, and there are almost no institutions exclusively for its treatment.

As a result of the bacteriological work of the present century the infectious nature of this disease has been demonstrated, and it is now almost universally recognized to be due to focal infection. Many workers have been able to produce typical arthritic lesions in experimental animals by the injection of certain strains of streptococci. The problem of arthritis has been greatly complicated by the fact that it is not caused by a single specific organism like the typhoid bacillus or the tubercle bacillus, but by a large group of streptococci with staphylococci and colon bacilli as contributing factors. It is known that the streptococci include almost an indefinite number under the general groupings of hemolytic, nonhemolytic and viridans. Crow, of England, by cultural means has differentiated hundreds of distinct strains of viridans sterptococci, and states that he is sure this is only a beginning. Streptococci also have a certain degree of tissue specificity, first pointed out by Rosenau a number of years ago. This specificity seems not to be quite so absolute as was at first thought, but is yet very definite. Serologically, various strains of streptococci can also be differentiated, and this fact is of great help as a guide in treatment.

When the so-called "focal infection" theory of the origin of arthritis became generally ac-

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cepted, it carried an unfortunate impression to many minds that there was a "pocket" of pus somewhere, absorption from which was causing the arthritis. The logical conclusion following this conception was that if the pocket of pus was removed the arthritis would be cured. As a result, a painstaking search was made for foci, and when one was found it was removed. Unfortunately, after this was done, most patients were unimproved or continued to progress, while a certain number made a spectacular recovery or became very much worse. In many cases even after the most thorough search no "pocket" of pus could be found.

These experiences were very discouraging. They are, however, explained by two facts, first, that a focus of infection is "an area of tissue infected with disease-causing organisms," and that no pus need be present, and, second, that by the time an arthritis becomes established there are actual infecting organisms about the joints which are not disturbed by the removal of their original point of entrance.

We now know that infected gums which are of such a degree as to be considered only a mild pyorrhea may cause as much if not more trouble than a well formed apical abscess. A generally inflamed condition of the pharynx is as important a focus as diseased tonsils, and enteritis or colitis of mild degree with constipation as its only symptom may cause more trouble than an antrum full of pus. In fact, we find that the walled off "pocket" of pus is less important than the diffuse infected area without pus formation.

Recently it has been demonstrated culturally and microscopically that all of the tissues involved in experimental arthritic joints harbor living streptococci, and that this is frequently true of the internal organs as well. We are thus convinced of the systemic character of arthritis, and of the futility of expecting cure from the removal of the original focus, even when this is possible. Of course, in some cases the infection about the joints may be so slight, and the resistance of the patient so good that he is able to overcome the disseminated infection after its source is removed.

After the successful preparation of vaccines against smallpox, typhoid, anthrax and other conditions several years ago, vaccine treatment was welcomed as a cure for all ills. Many arthritis vaccines were prepared, and in occassional cases gave good results, but in general were disappointing because, with the great variety of organisms which might be present, a given vaccine might not contain any of those infecting the given case. Autogenous vaccines were also made from all organisms which could be cultured from the patient or from individual foci, but no accurate method was known to separate the pathogenic from the saprophytic bacteria. The results were better with autogenous vaccines, but not what had been hoped.

Because of the unsatisfactory results of such vaccine treatment, non-specific protein or shock treatment was tried, most frequently using typhoid vaccine or sterile milk. In a certain percentage of cases the results were good where the patient's resistance was high, but there were often disastrous results in the more debilitated individuals.

Since the general practitioner, who has necessarily cared for this great army of arthritics, has received so little real help in treatment from any source, he has had to rely largely on local anodynes and drugs to relieve pain or increase elimination. Because of these conditions a legion of fake rheumatism "cures" are on the market. Most arthritic cases of several years standing have tried all of these that their digestion and funds will permit.

Some sixteen years ago, Dr. Burbank, of New York, began work with a certain strain of streptococcus which was isolated from an arthritic patient. He developed an active serum technique for complement fixation. essentially similar to the Wassermann reaction, but using streptococci as antigen. The number of antigens used was increased and now diagnostic polyvalent blood culture strains and focal strains from nose, throat, teeth, intestinal tract, gall-bladder, prostate, etc., are used. By careful selection of antigens the test has been made quite specific for the organisms infecting a particular group of tissues. For example, a fixation to streptococcus of dental origin indicates dental infection with the fixing type of organism. The same is true of the other regions of infecton. By this means it is possible to learn whether the patient has a streptococcus infection of the nose, throat, teeth, etc., and the type of infecting organism.

Quantitative estimation of complement is also done, which is of great prognostic value, as it very accurately indicates the patient's resistance, and helps in the determination of dosage. If complement is good, satisfactory results may be expected from treatment, while if low or absent, vaccine must be given with

great care or is contra-indicated. Those with deficient complement are the cases in which routine vaccine treatment without preliminary serological investigation is most unsatisfactory and dangerous.

In this group of cases with deficient complement we have found that repeated small blood transfusions will very quickly restore complement to normal, after which vaccine treatment can be carried out with good results and without danger.

A painstaking search for foci is made and cultures taken. A vaccine is made up from these organisms, using the compliment fixation test as a guide in the selection of strains, and killing the bacteria by phenol. It appears that vaccines prepared in this way are much more specific than those killed by heat. Because of the high specificity of the vaccine, dosage is very small, as it is essential to avoid any reaction. The dose may even go as low as five to fifty bacteria to the dose. The vaccine is usually given at weekly intervals, keeping the dose low enough to avoid even the slightest reaction.

Foci of infection should be eliminated, when possible, if the patient's resistance will justify it without causing a flare-up. Even badly infected teeth or tonsils should not be removed when the patient's condition is not good, but should be postponed until immunity has been increased by treatment to the point that they can be removed without danger. Abscessed teeth may be drained for a period before extraction until the patient's condition improves. The danger of wholesale removal of foci when the patient is not in proper condition cannot be over-emphasized, as this may so disseminate the infection and lower the patient's resistance that he will never improve. We see all too many such cases, hopelessly invalided for life, because of inopportune operative work.

While we feel that a properly prepared and properly given autogenous vaccine is the one most potent aid at our command in the treatment of arthritis, general medical treatment is not to be neglected. Diet, tonics, cod liver oil, iron, calcium and sun baths are used where needed. The patient's resistance must be kept at the highest point. Adequate elimination must also be assured, using colon irrigations at times. Exercise is essential, and in certain cases physiotherapy and massage is very helpful, but none of these should be carried on to the point of increasing pain and soreness.

I have been using the method of Dr. Burbank for over six years, and I feel that good results can be obtained in a large majority of chronic arthritics who have no undraining focus, have no other debilitating disease, such as tuberculosis, diabetes or syphilis, and are willing to cooperate in a rather long period of treatment. The improvement is necessarily slow, as it is due to the gradual raising of resistance against the infecting organisms. Fortunately the actual administration of most of the vaccine can be carried out by the family physician after the dosage has been established. Each dose is prepared in a sealed ampoule to avoid difficulty. It is then only necessary for the case to return for an occasional check up.

I wish to emphasize once more the fact that arthritis is a serious disabling systemic disease, which may be caused by one or more of a great number of organisms. Most cases of any standing are seriously debilitated, and must be handled with great care. The removal of foci of infection alone seldom helps, and frequently aggravates the condition. By close cooperation of the physician and patient good results can be obtained in a large majority of cases.

Medical Art Building.

DELIVERY ROOM MANAGEMENT OF OCCIPUT POSTERIOR POSITIONS.*

RICHARD B. NICHOLLS, A. B., M. D., Norfolk, Va.

Occiput posterior positions is a subject about which a great deal can be said and about which a great deal has been written. My brief remarks will be limited to the hospital management of this condition, rather than to its occurrence in deliveries in the home of the patient. As a very common complication of labor it has been under-estimated, and the obstetrician is confronted with the non-conformity of literature and opinions as to handling it judiciously. In handling occiput posterior positions the doctor's good judgment is most taxed in the management of any given case, for it is his duty as a good obstetrician "to deliver the woman, at term, if possible, of a living child with the minimum amount of suffering and traumatism to both the mother and newborn infant."

Occiput posterior positions obviously prolong the duration of labor, especially the second stage, provided, of course, that judicious

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interference is not instituted. The prolongation of labor by the abnormally presented head thereby increases the suffering and traumatism sustained by mother and baby.

The damage done to the baby, particularly the intracranial structures, can be, and very frequently is, fatal or permanent to the child. Fetal mortality and accidents to the baby are relatively high. Dr. Edward C. Hughes, of Syracuse, N. Y., in a recent article on "Intracranial Birth Injuries," very graphically points out the intracranial damage done through this abnormal presentation. In those cases where early rupture of the amniotic sac takes place, the labors tend to begin and progress slowly. With the occiput either right or left posterior, the head enters the pelvis in either of the oblique diameters. Often the base of the skull does not become engaged or pass through the superior strait until late in the first stage or early in the second stage of labor. In the occiput posterior position pressure is exerted along the antero-posterior diameter of the head. The occipital bone, as a result of its hinge-like action in its relationship to the maternal sacrum, moves forward under the two parietal bones. The frontal bones likewise move posteriorly under the parietal bones which in turn move medially due to the lateral pressure of the pelvis and a similar attachment to the base of the skull. As a result, the baby's head is decreased antero-posteriorly and increased vertically, producing the long moulded head of which we are all familiar. The effect upon the dural septa is definite. If moulding, pressure and distortion of the baby's head is maintained long enough, the tentorium cerebri gives away, laceration results, and is followed by hemorrhage from the surrounding venous plexuses. Intracranial bleeding from the venous sinuses is a cause of still-births, and often the result of occiput posterior positions.

Early diagnosis of the position of the occiput is essential. No patient should be allowed to go long in labor without the physician making a concerted effort to satisfy himself as to the relation of the baby's head to the mother's pelvis. Abdominal palpation, location of the fetal heart sounds by auscultation, stereoscopic X-ray plates and vaginal examination all aid in making the diagnosis. Of these a vaginal examination can be of most practical value. Where there is no apparent indication for Caesarean section due to cephalopelvic disproportion or any of the number of indications that may arise, a careful vaginal examination, repeated as necessary, under strict aseptic precautions should be done. By early examination one is put on guard as to the progress of the subsequent course of labor, and an anticipation of the strategy to be used.

May I digress a minute to discuss the advocacy of rectal examinations? I have not found it possible, except in infrequent cases, to diagnose the position of the head by rectal examinations, although dilatation of the cervix and station of the head can easily be determined. In well-regulated general or maternity hospitals where surroundings and equipment are available to do aseptic examination, the vaginal examination is safe, as has been proven by statistics. However, in poor surroundings, such as in home deliveries, I do not approve of vaginal examinations or instrumentation (forceps—version), and think that rectal examinations only should be relied upon.

"Puerperal mortality and morbidity are all too prominent today, as always, in obstetric literature," and, as Adair states, "new facts and methods should be cautiously sought and, when established, generally known and applied." The best place to handle any obstetric procedure, like major surgery, is in a well-regulated hospital, and, therefore, all operative obstetrics in the home should be kept to a minimum.

Practically all occipito-posterior positions should have and need judicial interference, whether it be primipara or multipara. By allowing nature to take its course, or by relying on the edict that "time and watchful waiting are the best obstetricians," especially in posterior positions, is only to increase the maternal morbidity and fetal mortality. The best obstetrics to practice is one which will reduce the maternal distress and relieve the baby' traumatism, but to say that all posterior positions should be treated in one way, I believe to be wrong. Each individual case should be treated according to the exact condition present.

A posterior position, or any vertex presentation, will, if no incompatible disproportion be present, deliver spontaneously in the greater majority of cases, provided, of course, the woman is allowed to go on in labor long enough. They will deliver spontaneously but not normally. However, there is a certain low percentage of occiput posterior positions in

multipara who will deliver rapidly and spontaneously with the occiput still posterior without any apparent distress to either the mother or child. Such patients obviously need no interference.

In determining when the interference is necessary is largely a matter of training and experience. No interference should be considered justifiable until the cervix is completely dilated and effaced, and the presenting part, the vertex, is engaged at the pelvic brim, or is in mid-pelvis. Also, interference should not be instituted until the vertex has failed to make progress for two hours after the first stage of labor has been completed, unless, of course, some imperative indication such as bleeding, fetal distress, or maternal exhaustion, comes into play. In all of these cases it is of most importance to make certain of no cephalopelvic disproportion, especially in primiparous labors, when one would have to decide between a vaginal delivery and a Caesarean section.

In patients where the membranes have ruptured early in labor, and before the cervix is completely dilated and effaced, the patient should be given the benefits of some effective analgesia, either of oral, hypodermic or rectal administration, and allow the cervix to become completely dilated. After labor has ceased to progress for a period of two hours, the patient is in condition to have helpful interference in terminating the labor. She should be completely anesthetized, placed in the lithotomy position, with bowels and bladder emptied, and the usual external preparation done. Now a more careful vaginal examination can be made and the decision as to the best method of procedure determined. If manual rotation of the vertex is possible, it should be rotated anteriorly and the delivery very easily completed with one forcep application. If the head cannot be manually rotated, as is often the case, forceps can be applied and, the head can either be rotated, according to the method of Dr. Bill, in the plane of the pelvis in which it is arrested, or it can be pulled down to the pelvic floor in the posterior position when a Scanzoni maneuver can be done. The selection of the type of forcep to be used depends entirely upon the operator as to the one he can use most effectively. Most of these cases, however, can be rotated almost to the transverse position by hand, and the rotation completed with forceps. Great care, accuracy and gentleness are needed in any forcep rotation, because considerable damage can be done to the bladder, vagina, and fetal head by the inexperienced operator.

In patients where the membranes do not rupture early the interference may vary. If the patient has complete effacement of the cervix and at least three-fourths dilatation, with the membranes intact and no disproportion between the pelvis and fetal head, particularly after labor has been going on for several hours, especially in a multipara, an elective internal podalic version would be the method of choice. This may seem on the surface to be a rather radical form of treatment, but, in selected cases, many hours of labor can be saved without undue traumatism to the mother or child. There is certainly not the prolonged birth pressure on the fetal head, the slow moulding, and the damage to intracranial structures found in patients where the membranes have ruptured early and the occiput has become impacted in the hollow of the sacrum. Statistics from the Philadelphia Lying-In Hospital, where this method is greatly favored, reveal lessened morbidity and fetal mortality, as also lessened perineal lacerations, than in a group of patients delivered spontaneously or with forcep manipulation. Dr. Norris W. Vaux, of that hospital, recently reported a series of cases presenting occiput posterior positions, and it is his opinion that timely internal podalic version, elective in type, is justified when the cervix is fully dilated and the membranes are unruptured, in preference to watchful waiting or forceps delivery by the Scanzoni maneuver under like condition. He points out clearly that the fetal death rate under specific indications aforementioned does not cause any material increase in death rate of the newborn following delivery.

The judgment of knowing just when to do the version—in other words, a timely internal podalic version—in these cases makes the operation safe. But as was mentioned earlier in the paper, posterior positions of the occiput and the involved mechanism is one of the most misunderstood and badly handled complications of labor, and, to treat them properly, each individual case should be managed according to the exact condition presented.

By way of summary, there are a few points that may bear reiteration:

1. Occiput posterior positions are annoying complications of labor which demand careful

judgment in order that best results may be obtained for both mother and child.

2. The intracranial damage due to prolonged unrelieved birth pressure in the occiput posterior position is definite in its ravages.

3. Early diagnosis of the position of the head is of prime importance in order to anticipate and plan a course of treatment.

4. Operative obstetrics of any type indicated in the management of obstetric complications should be done only in well-regulated hospitals.

5. Manual and forcep rotation of the occiput should be given preference in the choice of procedure where the membranes have ruptured.

6. Internal podalic version in selected cases is justified in that the end-results to a trained obstetrician are better than in those cases where difficult forcep rotation under like conditions had been resorted to.

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400 *Wainwright Building.*

FRACTURES AROUND THE ELBOW JOINT IN THE HANDS OF THE GENERAL PRACTITIONER.*

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During the past four years of our somewhat rural practice of medicine we have seen 300 cases with fractures. Forty of these have been fractures around the elbow joint. And let it be said here that we lay no claim to originality in diagnosing or treating these cases, nor do we believe that our results are better than those of other general practitioners. We are simply reporting average cases and conditions which are arising daily in the work of the country doctor.

These fractures have varied in severity from simple chips of the epicondyles of the humerus to compound, comminuted injuries involving the three bones of the articulation and as many displacements as the anatomy of the part will allow. Some have come to us 48 hours after injury with prodigious swelling involving the elbow and forearm, with large blebs completely encompassing the joint, while others have been seen with T-fractures of the lower end of the humerus complicated by rotation of the lower fragment.

Living as we do in a mountainous section, we make contact with all classes—from the almost primitive to the better, well-educated individual. Naturally, the treatment must harmonize with the surroundings of the patient. Of the better class, there is little to be said. These are treated under the best available conditions. But of the ignorant the story changes. We well know the mountaineers' superstitious dread of hospitalization, amounting almost to panic. Hence, many of these are treated in their own environment. It is not unusual to climb for miles along narrow paths, reaching, after much labor, some isolated cabin. Here the patient is seen with a two-day-old injury, the entire arm encased in stinking plaster of onion, tobacco, fat meat,—one or all. Removal of this layer in the great out-doors is to be recommended. At this point we reach a grimy integument the filth of which is of no lesser age than the injured person. On this single visit the doctor is expected to diagnose, prognose and cure or kill the patient. And the doctor devoutly agrees that this is a consummation to be desired.

Our age incidence is from 5 to 75 years, the majority occurring between 9 and 16 and more often in the male than the female. Practically all of these injuries result from direct violence.

Our first effort on behalf of the patient is to establish a diagnosis. The part is X-rayed in two planes (we are not equipped for stereo films) and, with the aid of deep anesthesia, a careful examination is made. Especial attention is paid to the circulation distal to the injury. By direct pressure, counter-pressure and traction we attempt to restore the fragments to their anatomic relations. In the cases of fracture of the lower end of the humerus with backward displacement of the fragment, we turn the palm forward and put up in flexion as acute as the circulation will admit. We gauge this latter by radial pulse. The apparatus for retaining position may be a pad in the elbow with adhesive around the arm and

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forearm and a sling over all. In some we have used plaster, enclosing the entire arm, in others an anterior, angulated splint with the joint well padded. In our experience, however, the majority of these cases can not be flexed further than 90 degrees on account of circulatory embarrassment. In two cases, on account of swelling and edema, no flexion was attempted. The arm was allowed to lie on a pillow at the carrying angle. Both of these cases have 100 per cent function. Hence, it may be understood that we have treated these cases in all degrees of angulation from acute flexion to the carrying angle, depending upon conditions.

Uncomplicated fractures of the olecranon are treated in extension on the long, anterior splint with adhesive strips dragging down on the upper fragment.

When possible, we see these patients six hours after manipulation, noting swelling, circulation and general condition.

In the typical cases between 9 and 12 years, we begin passive motion within two weeks. After 3 to 4 weeks, all support is removed and the arm allowed to hang at the side. The patient is encouraged to carry small weights in the hand to assist in straightening the arm.

At this time we supplement our treatment with diathermy. Here, too, care must be exercised in selecting patients, for some of them are rather skittish and believe this machine to be a radio-connected instrument of execution. More than one rural, cross-country runner has decamped with a pair of electrodes and yards of copper wire attached. In trade, he leaves a ragged over-all jacket the pockets of which contain nothing save a couple of highly polished buckeyes.

Our results have run the scale of recovery as truly as has our treatment but not in proportion. Some untreated cases have regained 100 per cent function. One much treated case has 90 per cent dysfunction. However, we have 25 cases who appear to have perfect use of the joint.

INTRA-OCULAR FOREIGN BODY—CASE REPORT.

JOHN A. PILCHER, JR., M. D., Roanoke, Va.

The following case is reported because of its uniqueness in the fact that the patient has no cataract after having had a piece of steel penetrate the entirety of the lens, and because the case history is a typical one of intra-ocular foreign body.

The patient is a male, 22 years of age, who came into the office February 29, 1932, complaining of having gotten something in his left eye on the afternoon of February 26, 1932, and that his eye was still sore. He gave a very typical history of an intra-ocular foreign body which is as follows: On the afternoon of February 26, 1932, about two and one-half days prior to his visit to the office, while hammering on the spring of an automobile, something got in his left eye. One of the employees of the shop immediately removed a small piece of something from his left eye and he felt better. However, the next day his eye was red and gave him some discomfort. On February 29, 1932, two and one-half days after the accident, his eye still being red and sore, he came to the office.

His vision was O. D. 20/15; O. S. 20/200. His left eye showed a moderate amount of photophobia and circumcorneal injection. Located at five o'clock was a small scar in the cornea showing some pigment. The pupil was contracted, and the iris reacted sluggishly. Upon slit lamp examination there were seen deposits on the posterior surface of the cornea, and small floaters in the anterior chamber; and the corneal scar appeared to involve the entire thickness of the cornea. The tension of the eye was normal. Upon dilating the pupil with atropine, a scar was seen in the lower portion of the lens. The eye was anesthetized, the pigment removed from the corneal scar, and then the left orbit was X-rayed for intra-ocular foreign body. A suspicious shadow was seen on the X-ray plate. A patch was placed over the left eye and the patient sent home. The next day his eye looked better and the anterior chamber was clearing. However, it was impossible to see the fundus clearly, due to the cloudiness of the anterior chamber. Atropine was instilled, the eye was repatched and the patient told to return the next day.

Upon the next visit, March 2nd, the anterior chamber was clear and a small shining object could be seen in the vitreous body, which, upon slit lamp examination, proved to be a piece of steel floating in the vitreous. The eye now being quiet, the patient was advised to have the steel removed from the vitreous body.

The following morning he entered the hospital. The piece of steel could still be seen

XUM

floating in the vitreous. Small deposits appeared on the posterior surface of the lens. Under local anesthesia, after the conjunctiva and Tenon's capsule had been incised, a small V-shaped incision was made in the sclera between the median and inferior recti muscles about one cm., posterior to the limbus of the cornea. By means of a magnet the piece of steel was removed. Tenon's capsule and the conjunctiva were sutured with black silk. The patient was caused to remain in bed two days, and was discharged on the fourth day.

In about ten days his eye was quiet. His vision continued to improve. On June 17th, glasses were prescribed, his vision being 20/25 with correction.

The above case shows the importance of carefully examining the eye in which there is a foreign body. The history is typical of nearly all cases of intra-ocular foreign body. When a case comes in giving the history of something getting into the eye while hammering upon stone or metal, it is important to carefully examine the eye to determine whether or not a penetrating wound is present. When in the slightest doubt, it is wise to X-ray the orbit for intra-ocular foreign body. It is strange to note that little pain is caused by sharp pointed bodies entering the globe. Some complain of no pain at the time of injury, but only of sudden decrease in vision with the appearance of a red eye twenty-four to forty-eight hours later.

All intra-ocular foreign bodies should be removed, if possible, especially metallic foreign bodies, for irritating salts of the metal soon form about the foreign body, and a very painful eye results, which usually comes to enucleation. Fortunately steel is the most common intra-ocular foreign body and the easiest to remove, it penetrating the eye as the result of a flying chip from a hammer. Copper is the worst and most irritating of all, its salts being very injurious to the eye. Stone is rare as an intra-ocular foreign body; at the same time its presence is well tolerated, and it is wise not to attempt to remove a piece of stone should it be in a position where it is doing little harm, for more damage may be done by attempting to remove it. All organic intra-ocular foreign bodies, such as wheat, straw, and the like, should be removed immediately if possible, for they soon disintegrate and produce a very painful eye.

PILONIDAL SINUS.*

GUY W. HORSLEY, M. D., Richmond, Va.

The lesion known as pilonidal sinus or, as it is sometimes called, sacral dermoid, is not generally considered to be of major surgical importance, nor is it a rare condition, but on account of the frequent mistakes made in its diagnosis and treatment it does deserve attention.

Pilonidal sinuses and cysts are congenital in origin, and are supposedly formed due to faulty coalescence of the cutaneous covering over the sacrum during embryonic life. It is doubtful if the neurenteric canal has any part in its formation, as was formerly believed. The defect has also been considered to be an exaggeration of the post-anal dimple commonly observed in this situation, and, therefore, is a sequestration dermoid due to the skin being shut off from the external surface.

Another theory as to their origin, and probably the best one advanced so far, has recently been set forth by H. B. Stone, of Baltimore. He calls attention to the preen, or oil gland, of birds, which lies imbedded in the subcutaneous fat over the last caudal vertebra. It consists of numerous straight tubules lined with polyhedral epithelial cells. These tubules converge into a common sac which in turn empties through an epithelial lined duct on the skin of the back. In birds there may be one or more ducts leading to the skin, as many as six being reported in some species. Through the orifice of this duct there are usually a few hair-like feathers protruding. These are called "the wick."

The direction of these ducts is inward and cephalad, exactly similar to that of the pilonidal sinus. The secretion of the preen gland is used by the birds to oil and condition the feathers. Stone says that Paris has shown that not only in birds but also in some species of reptiles and mammals similar structures are found, and concludes as follows: "Certainly it may be said that in many species of animals the skin about the sacrococcygeal and anal region possesses the power of developing glandular structures strongly suggestive of a relationship to pilonidal sinus. It then may be assumed that in certain individuals of the human race this latent potentiality for some rea-

*From the Department of Surgery, St. Elizabeth's Hospital, Richmond, Va.

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son develops into an actuality and results in the structure known as a pilonidal sinus."

A pilonidal sinus should not be difficult to

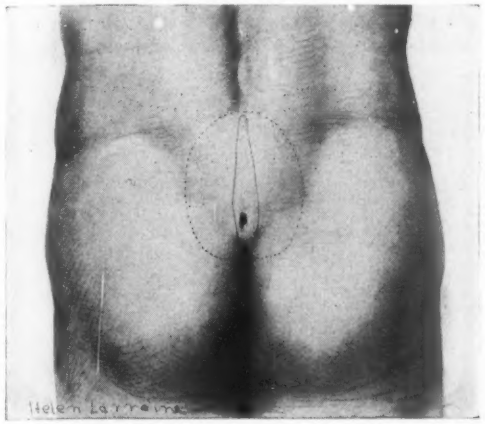

Fig. 1.—The usual position of the sinus opening. The straight line indicates the skin incision. The dotted line represents the amount of subcutaneous tissue removed.

diagnose, and generally presents itself in the midline just over the sacrococcygeal joint. (Fig. 1.) There is usually one orifice; fre-

Fig. 2.—Photomicrograph of the cross section of a sinus lined with stratified squamous epithelium. There is much infiltration and infection about the sinus. (X43.)

quently from this a thickened cord-like tract can be felt just under the skin, and the sinus tract can be demonstrated by a probe passed upward at a slightly increasing depth. If there has been some infection, one or more openings may be present, and these may obscure the diagnosis. The edges of the original orifice are smooth and rounded and often a small tuft of hair is found protruding through it.

The sinus leads upward and inward toward the sacrum, ending in a blind sac, but does not actually come in contact with the bone. It consists of a firm fibrous canal, lined with stratified epithelium, and also contains hair follicles and sebaceous glands. (Figs. 2 and 3.) The cavity usually contains sebaceous material and hair.

Although these sinuses are congenital, they do not usually give trouble until early adult life. The patients give a history of intermittent discharge that has lasted for some time, but they do not seek medical aid until the

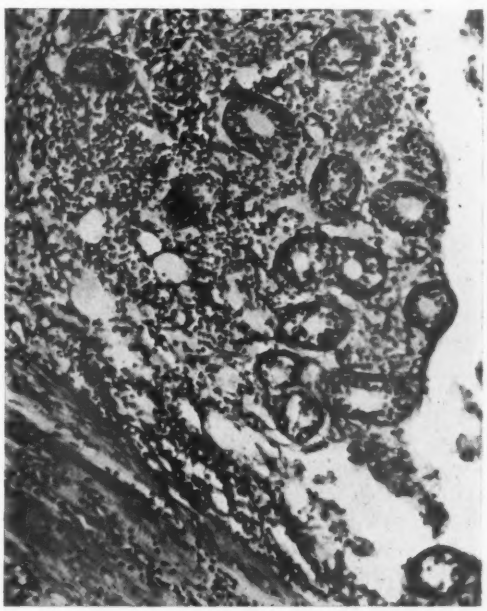

Fig. 3.—Photomicrograph (X150) of the glands found deeper in the fatty layer about a sinus.

sinus has become infected and purulent material is being discharged. Eventually nearly all of these sinuses become infected, due to their proximity to the anus. Because these patients are generally not seen until an infection has occurred, the diagnosis is often obscured and an asymmetrical abscess in the su-

XUM

perficial fat of the buttocks may be confused with a carbuncle, and one whose orifice is close to the anus with a peri-anal abscess. A fine probe passed into the sinus should definitely distinguish between a pilonidal sinus which invariably leads upward and inward, and an anal fistula which would lead downward toward the anal canal. In a case of osteomyelitis of the coccyx or sacrum, bare bone could be felt with the probe. These sinuses are more frequently found in males than females, and as yet have not been reported as being seen in the negro.

The only satisfactory treatment of pilonidal sinus is block dissection of the lesion, including the skin, subcutaneous tissue, sinus and sac en masse. Thus the dissection goes down to the fascia of the gluteal muscles and the parasacral fascia. Complete excision, including a fairly good margin of healthy tissue is necessary due to the fact that the hair follicles and sweat glands which open into the sinus may be a little distance in the surrounding fat, and there would be a recurrence if any of these

Fig. 4.—The entire specimen just after removal.

glands were left. (Figs. 4 and 5.) The importance of such an operation is quite forcibly brought out when we note that all but one of the twelve operative cases of our series have had one or more previous operations performed on these lesions, without relief of the symptoms. These previous operations consisted of everything from a simple scraping of the tract to a supposed excision of the entire sinus, but the radical procedure had not been attempted in any case.

Since infection is usually present, and the circulation in this area is poor, it is best to treat these cases with hot wet dressings for a day or two to clear up some of the infection before attempting total extirpation. In those cases which are severely infected, it may be advisable to incise and drain for a week or more before proceeding with the radical operation. Post-operative infection of the wound has been found to be greatly diminished by excising the tissue with the endotherm which

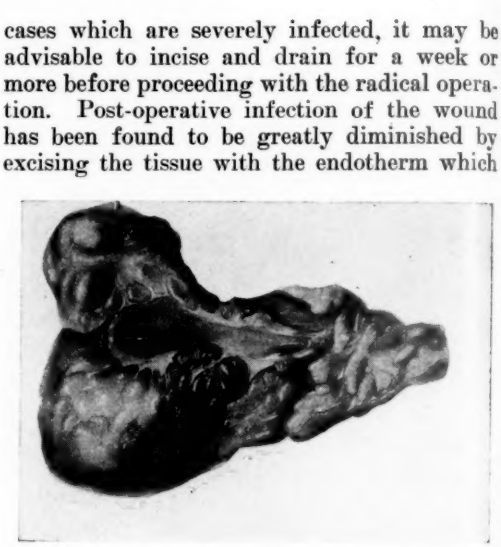

Fig. 5.—Same as Fig. 2, with the sinus and sac opened.

prevents further spread of the infection already present.

One of the disadvantages of the block dissection is that a large area is left which may be difficult to fill in, and, if left to granulate, a great deal of time is required for the defect to be filled and a large mass of scar tissue is formed directly over the sacrum. This scar would be constantly subjected to pressure and trauma when the patient is sitting down, resulting in much pain and discomfort. This disadvantage has been overcome by undermining the edges of the incision for several centimeters, drawing the fat together in one layer, and then passing heavy sutures completely through the fatty tissue and skin, thus relieving some of the tension, and obliterating the dead space. (Fig. 6.) The skin is further closed with fine sutures. Several other methods have been advocated, such as making additional lateral incisions to relieve tension, but this gives a larger amount of raw surface, with a greater possibility of infection and scar tissue. Cases seen before infection has occurred should have the sinus excised, since such a wound could be closed cleanly. This operation would be shorter and much easier than if it were put off until infection had occurred.

Within the past three years there have been 15 cases of pilonidal sinus observed in St. Elizabeth's Hospital. Eleven of these cases were admitted with the draining sinus as the

chief complaint, and all of these had been operated upon one or more times elsewhere. Four cases were noted on routine examination, and one of these submitted to operation; the remaining three refused operation since they had had no trouble except for an excess secretion of sebaceous material just above the anus. Of the 15 cases, 9 were males and 6 were females, with the ages varying from 19 to 49 years, the average being 28.

All of the operations were done by Dr. J. Shelton Horsley, and I assisted at each.

The eleven patients who were operated upon for infected pilonidal sinus gave a history

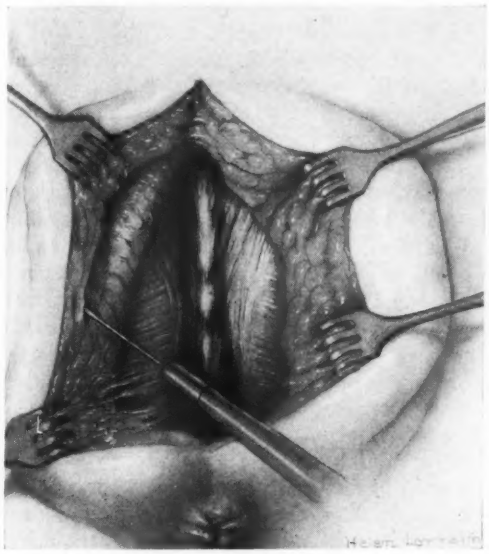

Fig. 6.—The incision after block dissection of the lesion, showing the fascia of the gluteal muscle and the para-sacral fascia, also the method of undermining the margins of the incision with the endotherm.

of pain and purulent drainage for from one to fifteen years. After the previous operations, relief of their symptoms would be obtained for several weeks, at the end of which time there would be some pain and swelling and finally drainage.

In the last few cases healing has apparently been aided by keeping the patient from lying on his back, and thus preventing further bruising and trauma. The possibility of infection, if not already present, has been greatly diminished by keeping the patient constipated for several days after operation, and, when an enema is given, letting the patient use a commode instead of a bedpan, thus eliminating the danger of contaminating the wound during defecation.

Four of these cases have been operated upon in the past two months and the final results on them cannot be stated at this time; however, there has been no recurrence of symptoms in any of those operated upon, and no uncomfortable scars have resulted, since the skin was closed in each case.

These patients are always among the most grateful ones, because usually they have been through several operations previously with return of symptoms, and finally being without a foul discharging sinus is of untold relief to them.

617 *West Grace Street.*

MULTIPLE BILATERAL PRIMARY LESIONS WITH BILATERAL ADENOPATHY IN TULAREMIA.

STAIGE D. BLACKFORD, M. D., University, Va.

Bilateral tularemic ulcers with bilateral glandular swellings are relatively rare. Dr. Walter Simpson writes that in the 103 infections occurring in the vicinity of Dayton, Ohio, he has found only one. Dr. Edward Francis, in a personal communication, states that he knows of only six cases which have been reported in the literature, but that he has record of nineteen more. Since bilateral involvement of the glands in tularemia might easily be confused with general glandular diseases, it seems worth while to call attention to the possibility of its occurrence. In the following case, several diagnoses were considered before, on direct questioning, the typical history of tularemic infection was obtained.

Report of Case

A fifty-four year old colored farmer was seen in the Out-Patient Clinic on October 19, 1932. His chief complaint was enlargement of the glands in both axillae and the left epitrochlear region. He volunteered none of the following history until specifically asked.

On September 22, 1932, he had caught, killed, skinned and eaten a young rabbit. Three days later he had been forced to bed by severe headache, extreme prostration, chills, sweats, insomnia and vomiting. On the fourth day after infection, he had noted four "sores" on the

*From the Department of Internal Medicine, University of Virginia Hospital.

dorsum of the left hand and two on the volar aspect of the right hand. One week after skinning the rabbit, he had first observed enlargement of the left epitrochlear and both axillary glands. At about this time a severe productive cough had prompted him to call his physician who told him that he had "bronchitis with fever." Shortly thereafter the patient had begun to improve in all his symptoms and had gone back to work. The "sores" had healed promptly, but the glands had increased in size and had become slightly painful.

Fig. 1.—Tularemic ulcer scars on each hand.

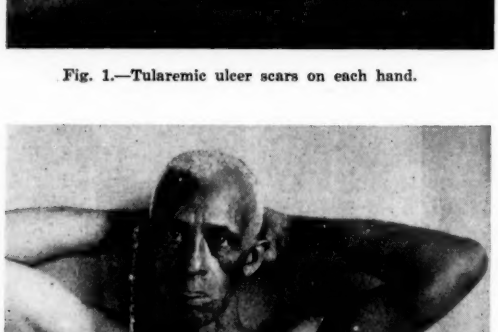

Fig. 2.—Bilateral glandular enlargement from tularemic ulcers on each hand.

The essential abnormal physical findings were four small ulcer scars on the left hand and two on the right with the left epitrochlear glands measuring approximately 4½x6 cm., the left axillary 4½x7 cm., and the right axillary 3½x5½ cm. All of these glands were slightly tender, but there was little, if any, fluctuation. Temperature, urinalysis, hemoglobin, red and white blood cell counts were normal. A specimen of blood serum agglutinated B. *tularense* in dilutions of 1:1280.

On November 9, 1932, the patient returned because the glands were paining him so much. At this time, the glands were soft and fluctuant, and were incised and drained.

THE INFLUENCE OF PREGNANCY AND DELIVERY ON THE PHYSICAL AND MENTAL HEALTH OF THE CHILD.*

HOWARD R. MASTERS, M. D., Richmond, Va.

The continued progress and stamina of our state and country is dependent upon the sanity and stability of the present and future generations. One's ability to adjust himself to this ever changing, increasingly more difficult, law ridden and custom shackled environment is proportionate to the quality of his progenitor's germ plasm, to the accidents attending birth and during life, to the nutriment supplied him, to his emotional guidance, to the efficiency of the social, educational and economic environment provided for him by the community.

What the future child is to be is largely contingent upon the physical and mental status of the ancestors and more directly the parents. For this reason persons contemplating matrimony should feel it their duty to determine their eligibility to parenthood. Physical and mental disease, the use of alcohol and drugs, and sometimes unhappy marital states, are not conducive to healthy normal offspring.

Every pregnant woman should put herself under the guidance of a physician. He will determine her status. The activity of the mother's glands of internal secretion influence the growth and development of the foetus as much as the child's glands influence his status in adolescence. For instance, under-secretion of the thyroid gland in the mother may be responsible for her going beyond term, which in turn causes the baby to be larger than average and may result in a slow labor, difficult delivery and the liability to brain hemorrhage. Imbalanced gland secretion is usually accompanied by disturbed body chemistry, especially lime deficiency, which endangers the mother's teeth, deprives the bone and nervous

*Read before the State Conference on Childhood and Youth, called by Governor Pollard, November 24, 1931.

system of an essential mineral, and makes the infant liable to rickets. The physician will direct his attention to the environment and mental attitude of the mother and attempt to prevent emotional stress and strain, combat time worn superstitions and wagging tongues which are far too often responsible for fears distressing to the mother. Just at this point, I want to say that the infant's emotions are unquestionably influenced by the bickering and squabbling which goes on in some homes.

For want of time I am assuming that the physician will investigate and care for heart, lung, kidney, liver and the various acute and chronic infectious disease when existent.

Concerning delivery, I might say that the welfare of the infant is dependent upon the past health and physical structure of the patient, the prenatal care, the facilities for the delivery, the technical qualifications and judgment of the obstretrician in handling the situation present at the time of delivery.

Brain hemorrhages from rupture of one large vessel to many tiny hemorrhages may occur from prolonged labor, contracted pelvis, certain drugs acting on the uterine muscles, suffocation, instrumental delivery or sudden release of compression. The aftermath of any of these varies with the extent of trauma (injury), the kind of structure involved, and location of the accident in the brain. The results of some of these accidents may be immediate, that is within a few days, while symptoms of others may not appear before one to four years. Early examination and treatment may aid in restoring the individual to normal or at least assist in approaching the normal. Wherever there is a question of damage within the skull a neurological examination should be made and, in case of suspected brain hemorrhage, a spinal puncture should be done. The writer is of the opinion that every case of suspected brain injury in the new born should have such a puncture. The quiet, inert, so-called good baby is just as apt to have suffered from brain injury as the stuporous, restless or irritable infant, and deserves thorough investigation.

Incident to delivery is the mother's physical, nervous and mental condition. Some may develop emotional disturbances, others mental symptoms; in the latter case the symptoms are usually acute, the mother acquiring a destructive attitude towards the infant. Immediate separation is important, and special protection of the mother is imperative. Disturbances of the thyroid gland may appear early in infancy and with proper treatment can be controlled. The various paralyses and deformities resulting from damage at birth may be improved or corrected by the neurologist, orthopaedist or neuro-surgeon. It is of paramount importance to determine to what extent the deformity will handicap the individual from a nervous, mental and physical standpoint, and institute treatment and guidance at an early age.

The infant lives at first by instinct and sensation, which are acts of self-preservation. Soon he is to learn the pangs of desire and the pleasure of gratification. The parental pitfall lies in satisfying these desires. Sympathetic indulgence of the loving mother and proud father are detrimental to the emotional make-up of the infant and a source of many of the difficulties in management of the child thereafter. The parents could save themselves much trouble and insure their child's stability if they would consult the family physician and child guidance clinics for instruction and literature on the subject. Let me warn you that not all the books on child welfare and guidance are acceptable.

We are fast coming to the belief that the basic psychological principles of life are developed in the first three or four years and that the reactions and behavior of the individual are directly proportionate to the guidance given during this early period. If this be true, every physician, nurse, social worker, and dispenser of welfare knowledge should make it his duty to see that the uninformed parents are given the proper instruction.

The success of this conference lies in the unity of a crystallized plan, the cooperative effort of the civic and professional organizations concerned in disseminating the findings of the commission, and in the support of our state government. I would therefore recommend that the Department of Public Welfare and the Health Department of the Commonwealth of Virginia cooperate to organize a plan to be put into effect through the various state medical, welfare and educational organizations at its disposal. Persons contemplating matrimony could receive proper advice and opinion as to their nervous and mental fitness by consulting the State Mental Hygiene Clinic and parents with young offspring may obtain guid-

ance in mental hygiene of the child. The State Prenatal Clinic will furnish instruction to pregnant women and provide hospitalization for the seriously ill, while the welfare organizations will care for the guidance of the mother and child.

212 *West Franklin Street.*

THE USE OF CONCENTRATED GLUCOSE IN THE TREATMENT OF ACIDOSIS IN CHILDREN.*

ROGER H. DuBOSE, M. D., Roanoke, Va.

Acidosis is a condition frequently seen in infancy and childhood, but rarely in adult life except in diabetes mellitus. It is chiefly due to a carbohydrate starvation. Whenever carbohydrates are limited or suspended the normal metabolism cannot go on. The fat metabolism merely smokes, resulting in acetone bodies being thrown in the urine.

During normal metabolism a considerable amount of acid substance is produced and under normal conditions they are eliminated as ammonia and phosphates, and if ammonia is excreted in excess it is indicative of a beginning acidosis. Among the normal constituents of the plasma are protein, sodium bicarbonate and inorganic phosphates. The sodium bicarbonate is relatively the most important in preserving the normal alkalinity of the blood and body tissues. In other words, acidosis may result from an over-production of acids or over-elimination of alkalines, which, in due time, will effect the alkalinity of the blood. As long as the alkaline base is not affected, most authorities claim you do not have a true acidosis, regardless of whether there is acetone series in the urine or not. The carbon dioxide tension is increased in true acidosis, which is one of the most reliable tests as to whether acidosis is present or not. Carbon dioxide tension of the alveolar air is normally between forty and forty-five m.m. According to Morse, thirty-five means a mild acidosis and twenty or less a severe acidosis.

It occurs to me that the carbohydrates are not well utilized or the supply is insufficient, especially in children who are offsprings of neurotic families. The metabolic mechanism is easily upset. Acidosis is more commonly seen in children who suffer with malnutrition, recurrent or psychic vomiting, from excitement, fatigue, infection, or in those whose nerve centers are unstable and are easily disarranged. In the robust individual the carbohydrate intake is well tolerated, which possibly is responsible for the infrequent occurrence of acidosis.

It appears to me that there is a relative acidosis seen in children whose urine contains acetone bodies, yet have no evidence of increased carbon dioxide tension or labored breathing. This condition may be brought about by a sudden onset of gastro-intestinal upset or undue excitement, starvation, etc., in which the alkaline reserve has been affected but not to the stage, clinically, of a true acidosis. It is a known fact that ketosis in humans does not begin immediately upon starvation or a high fat diet, but after combustion of the glycogen supplies in the body; after these are depleted, acetone appears in the urine. If a suitable amount of carbohydrates are not injected the alkaline reserve will be depleted and a true acidosis will result. We still have some authorities who believe that when acetone bodies are found in the urine acidosis is present. Personally, I have seen this condition repeatedly and if glucose is given, a more severe form of acidosis is apt to be prevented, as we know that acidosis is the result of a starvation carbohydrate. During faulty metabolism such as found in acidosis, the fat oxidation continues to smoke, not burn, and acetone bodies are thrown in the kidneys. Upon injection of the carbohydrate, acetone bodies are no longer formed in the blood and urine, and the faulty metabolism is corrected and normal oxidation takes place.

It is interesting to know that Karo corn syrup contains a mixture, chiefly, of dextrin, maltose and dextrose, with a small amount of sucrose flavored with vanilla extract, which makes it very palatable. According to the manufacturers, corn syrup is made by hydrolysis of high-grade cornstarch in dilute hydrochloric acid suspension. The mixture is heated under steam pressure until chemical test indicates the desired degree of hydrolysis. For detail of its chemical composition, I refer you to the *Journal of A. M. A.*, January 9, 1932, Volume 98, Number 2, Page 143. There is a little difference in the chemical composition of the different brands of Karo. The caloric values are the same, 3.0 calories per gram, 85 per ounce.

*Read before the Southwestern Virginia Medical Society, at Roanoke, Va., September 21, 1932.

According to Osborne, dextrose-glucose is the normal constituent of the body tissue. The carbohydrates are probably largely absorbed as such. The maltose formed by hydrolysis of cornstarch cannot be absorbed as such, but is converted into dextrose-glucose by the enzymes in saliva, ptyalin and amylopsin in the pancreatic juice, and is stored in the liver and muscle tissue as glycogen. Dextrin is an intermediate product between starch and dextrose and it is finally split into dextrose and absorbed as such. Dextrose is the least easily fermented and the most readily absorbed of the monosaccharides. The disaccharides and the polysaccharides, like starch, are not absorbed as such but are split up by the enzymes in the alimentary tract into monosaccharides.

For the past five years I have used the concentrated white crystal corn syrup (which is glucose) orally, in all of my outside cases of acidosis. In the hospital we used glucose intravenously. According to our records, these individuals were under ten years of age. They gave a history of having been sick two or three days, either from intestinal upset, or from some infection, diarrhea, fatigue or undue excitement, shock, from a surgical operation, starvation, etc. In the majority the intake of carbohydrate had been limited for one reason or another. These individuals were listless and irritable, the pulse weak and thready, the skin was dry, the lips more or less red and parched, the pupils were usually dilated, the eyes were oftentimes sunken, and dehydration had occurred. The respiration was deep and labored. The patients sighed a great deal as if having trouble getting air (air hunger). Temperature varied from 100 to 103 or more. They vomited freely, and water, orange juice or cracked ice could not be retained. Almost all of them were extremely thirsty. Acetone breath could be detected in most of them unless some particular type of fruit juice had been given to disguise its odor. The urine contained a heavy trace of acetone and diacetic acid.

The intravenous injection of glucose is a valuable therapeutic procedure, which has been neglected in small children as well as some older ones, due to the fact of the difficulty of getting into the small veins. If the individual is in the hospital it is an easy procedure to give the child an intraperitoneal of five per cent glucose, provided that route is practical. It occurs that with most clinicians the greatest thought is getting fluids into these individuals insteads of carbohydrates. The use of glucose by rectum oftentimes causes abdominal distention and much irritation; the patient becomes restless and requires constant attention of the nurse to carry out orders.

We have found for practical purposes the use of Karo orally is well received by almost all children. It appears to have an antipyretic action as well as diuretic. We also have noticed that in a mild attack of acidosis diacetic acid was not present in the urine, but acetone was. In a more severe form both acetone and diacetic acid would be present. We have not checked any of the blood sugars in these individuals with so-called acidosis (arrangements are being made to do it now), but we have found by experience that when twelve to sixty grams or from one-half to two ounces of pure crystal corn syrup was given orally in broken doses at one to two hour intervals, the acetone breath and acetone bodies in the urine disappeared in from six to twelve hours. The individual was no longer listless or irritable but full of pep. They would receive fluids generously and retain them without the further use of Karo. We have used it in over a hundred cases of acidosis as a result of burns, shock, infection, starvation or intestinal upsets. Our results with Karo in treating these cases have been most gratifying. I urge you to try it where the use of an intravenous injection of glucose is not practical.

923 *Third Street, S. W.*

Analyses, Selections, Etc.

Misuse of the Caduceus.

I have read your note on the Danish charity stamps of 1929 with interest. What you have to say therein reflects a curious confusion about the caduceus which is common in the United States, even among medical men. For the caduceus (or caduceum) has no connection with medicine and the device shown on the Danish stamps is not a caduceus. The stamps were sold for the benefit of the Danish Cancer Committee and the designer has properly chosen the symbol of Asklepios, the god of medicine.

The Asklepian symbol is a serpent twined about a stick; the caduceus consists of two serpents intertwined about a wand surmounted by a pair of wings. It is symbolical of Hermes, the god of highwaymen, robbers, athletes and traveling salesmen, the patron of commerce and the fat purse, and who had no relation to healing. Its erroneous use as a symbol of healing seems to be confined to this country particularly among government medical men and services. However appropriate it may be for some American doctors, with its connotation of profit, it is not the symbol of the medical profession in general and it is not used by the American Medical Association nor by physicians and medical services abroad. All of these latter use the true Asklepian symbol.

This use is traditional and has continued from the early days of the Greeks. Asklepios (or Aesculapius) was always shown in Greek and Roman art with a single snake usually coiled about his staff but never with the caduceus. It is not known who Asklepios really was, whether man or god, but it is related that his skill at healing was so great that Pluto complained that he was depopulating hell and that he was thereupon annihilated by Zeus. He appears in the heavens as a constellation, The Serpent-Holder. His principal seat was at Epidauros, whence he was imported to Athens and to Rome.

I have taken this information from an interesting discussion of the two symbols and the misuse of the caduceus in an article "The Caduceus," by Stuart L. Tyson, D. D. (Oxon.), in *The Scientific Monthly* for June, 1932, on page 492 of volume 34.

The Danish stamps are properly designed with reference to healing, but they do not show the caduceus and if they did such use would be improper.—(*Selected.*)

Medical Service for the Indigent of Warren County, Virginia.

Because of its interest for doctors generally, we are publishing the following article, which recently appeared in the *Monthly Calendar* issued by the Bureau of Public Health Nursing:

Reports show that very few young medical graduates are locating in rural communities: as old physicians die or retire from practice, it often occurs that no others come to replace them. Probably the chief of the many reasons for this is that the young physician who has spent so much for his education is not willing to endure the hardships of a country practice for the small amount of money he can collect. The good roads now traversing most of the country enable the patient with money to go to a hospital or the city to consult a specialist; consequently a large part of the practice of the rural physician is with charity or semi-charity cases.

The amount of charity work demanded of the average physician in the country is beyond all reason, yet of course those absolutely unable to pay should not be allowed to suffer. The Board of Supervisors of some counties have been paying bills submitted to them for treatment of indigent cases, but no satisfactory system in this has been devised whereby all can be helped and the physicians receive anything like adequate compensation. The physician should be paid a reasonable amount for caring for indigents; it is just as much the duty of the county to do this as it is to pay for sheep killed by dogs, or provide jails for the punishment of crime.

Warren county is trying out a plan which we believe is fairly satisfactory to all concerned, and in a modified form, probably might be carried out successfully in any county.

In March, 1932, the Warren County Board of Supervisors looked about for a way to economize and yet do justice to the physicians and the indigent sick. The following arrangement was agreed upon: Each of the three physicians of the county is to be paid a stated sum for the services rendered county dependents during 1932-1933, the physicians each serving a month at a time, making a total of four months per annum, per physician. The person needing medical aid must get an order to that effect from the county overseer of the poor.

The Board realized that medical treatment is often ineffectual because the doctor's orders are not carried out; so the public health nurse was instructed to visit the families receiving treatment and give them such instruction in hygienic matters as seemed most needed.

The County Medical Service to the Indigent and the County Public Health Association drew up the following list of requisites for free medical attention:

1. Families of patients must follow the instructions in hygiene given by the physician

and the nurse in caring for the sick members.

2. Patients with communicable diseases must follow the directions given by the physician and the nurse, and obey the rules of quarantine and isolation.

3. (a) Prenatal cases must report to the Health Center in their districts, at least five months before the time of expected delivery. (b) Expectant mothers must attend the conference periods held in these places for their instruction. (c) Each mother must visit a physician for examination at least once before delivery, and take the baby with her for examination when it is six weeks old. (d) Each expectant mother must follow the nurse's instructions in preparing for delivery.

Warren county has four physicians this year in active practice, and if the present plan continues in operation, it would seem that satisfactory results should be forthcoming.

Woman's Auxiliary, to the Medical Society of Va.

President—Mrs. William Lett Harris, 1112 Matoaka St., Norfolk.
President-Elect—Mrs. Joseph Bear, 3012 Monument Ave, Richmond.
Recording Secretary—Mrs. Fletcher J. Wright, 49 S. Market St., Petersburg.
Corresponding Secretary—Mrs. Charles A. Saunders, 1000 Gates Ave., Norfolk.
Treasurer—Mrs. Reuben F. Simms, 2034 Park Ave., Richmond.

Welcome to our Newest Auxiliaries.

On March 16th, the doctors' wives from Newport News and vicinity met at the home of Mrs. J. T. Buxton for the purpose of discussing the value of a Woman's Auxiliary in their community. By invitation, Mrs. Franklin Wilson, President of the Norfolk County Auxiliary; Mrs. Southgate Leigh, State Chairman of Education and Program, and Mrs. William Lett Harris, State President, spoke on the aims and purposes of an Auxiliary. Instead of one Auxiliary being organized, three came into being, namely, an Auxiliary to the Warwick County Medical Society, Mrs. W. S. Snead, President; an Auxiliary to the Elizabeth City County Medical Society, Mrs. John Cullinan, President, and one to the James City County Medical Society, Mrs. J. R. Tucker, President.

A hearty welcome is extended to them. An interesting account of their organization and proposed activities will be published in the June issue of the Monthly.

Invitation to Milwaukee Meeting

The members of the Woman's Auxiliary to the Medical Society of Wisconsin and to the Medical Society of Milwaukee County extend to the wives of members of the American Medical Association a most cordial invitation to be their guests during the coming meeting of the American Medical Association to be held in Milwaukee the week of June 11, 1933.

An interesting program will be offered. Entertainment is being planned and every effort is being made to insure a pleasant and comfortable stay while you are our guests.

We are anticipating with great pleasure your being with us in June, and we urge your cooperation in securing a large and representative attendance.

Reservations may be made by writing to the Hotel Pfister, Milwaukee, which will be Auxiliary Headquarters.

Very sincerely yours,
Mrs. Fred Nause,
Pres. Woman's Auxiliary to the State Medical Society of Wisconsin.
Mrs. Rock Sleyster,
Pres. Woman's Auxiliary to Med. Society of Milwaukee County and National Convention Chairman.

In response to the most cordial invitation of the Convention Committee, of whom Mrs. Rock Sleyster is Chairman, I would add, the least we can do is to accept if at all possible. The committee has spared neither time nor money to arrange a good time for us. I am sure most of us can spare the time, and the money need not be a great stumblingblock, since Mrs. W. S. Liefort, 4103 N. Murray Ave., Milwaukee, Chairman of Reservations, writes a room may be had at the Woman's Club for $1.00 per night. The Y. W. C. A. have rooms at $1.00 and dormitory service at 75c per night; also a cafeteria, where excellent meals are served. You know the World's Fair in Chicago is just a few hours away from Milwaukee. Why not have two trips in one?

Very sincerely,
Mrs. Edward Clay Mitchell,
Chairman.
Mrs. Ed. Quick,
Vice-Chairman, Inter-state Committee.

Milwaukee Invites You.

When you come to Milwaukee in June to attend the annual convention of the Woman's Auxiliary to the American Medical Association, you will find a store of pleasures awaiting you. First of all, the program, as arranged by the local committees, under the chairmanship of Mrs. Rock Sleyster, is completely arranged for your pleasure and entertainment; and secondly, the City of Milwaukee is such a friendly and hospitable metropolis that the combination will leave a pleasant impression upon your memory.

Milwaukee is situated on the western shore of Lake Michigan, the largest fresh water lake in the country. Its beautiful harbor is the deepest and one of the largest on the Great Lakes. Through the city three navigable rivers wind their ways into the heart of the down-town district and empty into the lake. The pioneers found the rivers and the lake to be important means of transportation but they never dreamed of what they would mean to the commerce and industry of the new-born city in days to come. Today Milwaukee ranks the twelfth largest city in the United States, with a population of approximately 800,000.

You may be surprised to know that besides being a commercial city, Milwaukee is really a beautiful residential city. Its parks and playgrounds scattered throughout the city cover an area of more than 1,500 acres. These parks scattered along the lake shore and the courses of the rivers and dotted picturesquely throughout the city, offer the comforts of beauty, recreation and rest to all who come to them.

Lake Park, the northeast edge of Milwaukee, is a fine expanse of woodland on Lake Michigan, and its approach from the down-town district, along Lincoln Memorial Drive, is one of the most beautiful features of the city. The Drive is a wide concrete boulevard, extending for six miles along the lake shore, passing by the wild-life lagoon, the Coast Guard Station, the Yacht Club, the Gun Club, and many bathing beaches, and then leading directly into Lake Park, from which it continues on through one of the exclusive residential districts.

Washington Park, on the west side of the city, has as its feature the nationally known Washington Park Zoo. It is the largest municipally owned animal exhibit in the United States. It boasts of a unique Monkey Island, where thousands of people yearly watch the many different types of monkeys frolicking about unhampered on this island. Another new and recently completed attraction is a barless bear den, constructed as a natural refuge, separated from the onlookers only by a very deep moat, from which the bear cannot escape.

Mitchell Park, on the south side of town, is famous for its conservatory and the wonderful displays of chrysanthemums, orchids and many rare flowers. In addition to this there is a formal sunken garden, most beautifully arranged and planned.

Be sure to avail yourselves of the privileges which Milwaukee women will afford you to see these and many other lovely parks and the surprisingly beautiful residential districts.

Downtown you will find the hotels modern and clean, and convenient to all convention activities, as well as to the shops and tea-rooms. The New Pfister Hotel ("new" because it has been remodeled recently), is an old and famous hostelry, where many of our country's presidents have stayed while in Milwaukee. You will particularly enjoy the noted and extremely valuable art collection on the mezzanine floor. This hotel, as you know, will be our Auxiliary Headquarters.

There is another important but very different reason for your coming to Milwaukee this year. Chicago, with its great World's Fair, "The Century of Progress," is only eighty miles away, or two short hours by bus, train, or electric. Whenever before was it possible to make two such interesting and valuable trips in one?

Not only the doctors and doctors' wives, but all of Milwaukee will welcome you most heartily when you come in June. Already the most minute plans for your pleasures and comforts are being made, and if you have any suggestions as to some particular service which you think our guests would appreciate, just drop a note, with the suggestions, to the General Convention Chairman, Mrs. Rock Sleyster, 1220 Dewey Avenue, Waumatosa, Wisconsin, and she will see that your wish is carried out if it is in any way possible.

Remember the dates, June 12th-16th, and begin now to tuck away the necessary dollars to make it possible for you to partake of the many benefits of the convention and of Milwaukee hospitality.

Truth About Medicine

In addition to the articles enumerated in our letter of January 28th, the following have been accepted:

Don Baxter Intravenous Products Corporation
- Sterile 2½% Dextrose Solution in Vacoliter Container.
- Sterile 5% Dextrose Solution in Vacoliter Container
- Sterile 7½% Dextrose Solution in Vacoliter Container.
- Sterile 10% Dextrose Solution in Vacoliter Container
- Sterile 20% Dextrose Solution in Vacoliter Container.
- Sterile 25% Dextrose Solution in Vacoliter Container.

Hille Laboratories, Inc.
- Colloidal Mercury Sulphide—Hille

Hoffman-LaRoche, Inc.
- Ampules Scopolamine Stable—Roche, 1/100 gr., 1 c.c.

Bilhuber-Knoll Corporation
- Metrazol Solution 10 per cent.

Diarsenol Co., Inc.
- Neodiarsenol, 1.5 Gm. Ampoules.
- Neodiarsenol, 3 Gm. Ampoules.
- Neodiarsenol, 4.5 Gm. Ampoules.

Hixson Laboratories, Inc.
- Diphtheria Toxin-Antitoxin Mixture 0.1 L+.
- Diphtheria Toxin Antitoxin Mixture 0.1 L+ (Sheep).
- Diphtheria Toxoid
  - Diphtheria Toxoid two 1 c.c. vial package
  - Diphtheria Toxoid one 10 c.c. vial package.
  - Diphtheria Toxoid one 30 c.c. vial package.
  - Diphtheria Toxoid twenty 1 c.c. vial package.

Lederle Laboratories, Inc.
- Plantain Pollen Antigen—Lederle.

Merck & Co., Inc
- Chlorbutanol (Hydrous)—Merck.
- Chlorbutanol (Anhydrous)—Merck
- Neocinchophen—Merck.

The following products have been included in the List of Articles and Brands Accepted by the Council But Not Described in N. N. R.:

Merck & Co., Inc.
- Bismuth Betanaphthol—Merck
- Bismuth Subsalicylate—Merck
- Phenobarbital—Merck
- Procaine Crystals—Merck
- Thymol Iodide—Merck

Don Baxter Intravenous Products Corporation
- Physiological Sodium Chloride Solution in Vacoliter Containers.

NEW AND NON-OFFICIAL REMEDIES

The following products have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion in New and Non-official Remedies:

Diphtheria Toxoid—U. S. S. P.—A diphtheria toxoid (New and Non-official Remedies, 1932, p. 370), prepared from diphtheria toxin whose L + dose is 0.2 c.c. or less by treatment with formaldehyde. The product is standardized to contain in 2 c.c. enough of the toxoid for one immunization treatment. It is marketed in packages of two 1 c.c. vials; in packages of twenty 1 c.c. vials; in packages of one 6 c.c. vial; in packages of one 20 c.c. vial; and in packages of one 30 c.c. vial. United States Standard Products Company, Woodworth, Wis.

Maltine with Mineral Oil and Cascara Sagrada.—A mixture of liquid petrolatum (New and Non-official Remedies, 1932, p. 245), 40 c.c., and Maltine (New and Non-official Remedies, 1932, p. 273), 60 c.c., containing a non-bitter extract of cascara sagrada representing 2.2 Gm. of cascara sagrada per 100 c.c. The Maltine Co., Brooklyn, N. Y. (Jour. A. M. A., February 11, 1933, p. 411).

Sterile 5% Dextrose Solution in Vacoliter Container.—Each 100 c.c. contains dextrose, U. S. P. (New and Non-official Remedies, 1932, p. 262), 5.25 Gm. Don Baxter Intravenous Products Corporation, Chicago.

Sterile 10% Dextrose Solution in Vacoliter Container.—Each 100 c.c. contains dextrose, U. S. P. (New and Non-official Remedies, 1932, p. 262), 10.5 Gm. Don Baxter Intravenous Products Corporation, Chicago.

Ampules Scopolamine Stable—Roche, 1/100 gr., 1 c.c.—Each ampule contains 1.2 c.c. (1 c.c. contains 0.0006 Gm. of scopolamine hydrobromide). Hoffmann-LaRoche, Inc., Nutley, N. J. (Jour. A. M. A., February 25, 1933, p. 574).

PROPAGANDA FOR REFORM

Jerusalem Artichokes.—The *Pittsburgh Medical Bulletin* calls attention to a newspaper advertisement describing artichokes as "The new and only non-starch vegetable garnish for your Thanksgiving turkey. Highly recommended for diabetic and reducing diets." The claim has been advanced that the artichoke, though containing 17 per cent carbohydrate, contains a sugar, inulin, which is peculiarly suited to the needs of the diabetic patient. The hydrolysis of inulin and its subsequent utilization in the body is no different from that of other sugars, as far as the metabolism of the diabetic patient is concerned. As the *Pittsburgh Medical Bulletin* succinctly remarks, "If the doctor will do the prescribing and the grocer will do the selling, this will be a safer and a better world." (Jour. A. M. A., February 4, 1933, p. 342).

So-Called Special "Diabetic Foods" or Special Foods for Sugar and Carbohydrate Restricted Diets.—There is authoritative evidence that commercially prepared special "diabetic foods" are of limited usefulness to the diabetic patient and that the availability of insulin makes them no longer necessary. The designation of a food as a "diabetic food" merely because it is low in carbohydrates is now unwarranted and misleading and gives the erroneous impression either that the food taken in unrestricted quantities in diabetes is harmless or that it has remedial action. Lay advertising for these special foods shall not include disease names such as diabetes nor directly or indirectly indicate that the foods are curative or increase the ability of the body to utilize sugar, or give the impression of harmlessness when eaten in unrestricted amounts by diabetic patients. Advertising of a medicinal or therapeutic character shall be limited to medical periodicals or material for physicians exclusively. The package label shall conform to the preceding requirements. (Jour. A. M. A., February 11, 1933, p. 411).

Crystalline Vitamin D.—It has been apparent for some time that the irradiation products of ergosterol represent a mixture of substances of which only a varying proportion is the active vitamin D. Conse-

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quently the question has arisen whether the toxicity known to be exhibited by very large doses of irradiated ergosterol are due to the vitamin itself, so that one could speak properly of hypervitaminosis, or to contaminating derivatives produced by the transformations of the natural sterol. Considerable progress has been made more recently by the fractional purification of the products of ergosterol irradiation resulting in the isolation of crystalline substances of noteworthy potency out of the mixtures formerly obtained. The latest report, by Professor Windaus records the isolation of what appears to be the antirachitic vitamin D in pure crystalline form. At least five other concomitant products of the irradiation process have also been separated—most of them in crystalline form. None of these exhibit antirachitic potency. Windaus and Luttringhaus have come to the conclusion that the pure vitamin D is not entirely devoid of toxicity. A dose of 0.075 mg., representing 3,000 international D units, is toxic to mice. The relative toxicity of pure vitamin D has been demonstrated to be far less than that of its common contaminants Whether the naturally occurring vitamin D of cod liver oil is actually identical with the chemically produced compound remains to be ascertained. (Jour. A. M. A., February 11, 1933, p. 426).

Recent Revisions or Elaborations of the Council's Rules of Interest to Manufacturers and the Medical Profession.—The Council on Pharmacy and Chemistry reports that it has made the following revisions of its rules: 1. Use of Numerals or Letters in the Names of Medicinal Products. The Council voted to amend the comments to its rule concerning trade names by addition of the following statement: Since the use of numerals or alphabetical designations in connection with drug names tends to take the emphasis away from the name and to displace the name, thus leading to confusion, the Council will not recognize the name of a drug in which the numeral or letter is an integral part of the name, except in special cases where the use of a numeral or letter seems desirable because further improvement of the product is anticipated, in which case the Council may grant a special exemption from the rule Under this rule the use of numerals or letters in connection with the name of a product will not be permitted on labels or in advertising, unless the numeral or letter is clearly separated from and subordinated to the name by type and if feasible by position. This rule shall not apply to price lists and catalogues. 2. Labelling of Ampules to Indicate Excess Content. The Council voted to amend the paragraph on "Statement of Composition," New and Non-official Remedies, 1932, p. 14, by the addition of the following: In the case of solutions marketed in the form of ampules the term "—c.c. size" will be accepted as a proper indication of the volume of contents, the significance of that term being understood to be that the ampule contains a sufficient excess of medicament to permit the withdrawal and administration of the dosage indicated by the size denomination. Individual ampules, or unit packages thereof, must bear a statement explaining the significance of the term "size" as it applies in a given instance. For example, if ampules are labeled "2 c.c. size," a satisfactory statement will be "Each ampule contains a sufficient amount to permit withdrawal and administration of 2 c.c." 3 Statement of Potency of Liver Extracts. The Council rules that manufacturers of liver extracts shall be required to limit statements concerning the potency of the representative fraction marketed to the affirmation that a given quantity of extract represents or is equivalent to the antianemic potency of a given quantity of fresh liver. 4. Use of Chemical or Pharmaceutical Name. To remove the ambiguity of the present provision, the Council voted to revise the sentence "For all definite chemical substances it is required that the scientific name be given prominence on the labels, in circulars and advertisements" (New and Non-official Remedies, 1932, page 19), to read: "For all definite chemical substances it is required that the scientific (chemical) names be given prominence on the labels, in circulars, and in advertisements; provided that for those substances for which there are recognized Council or Pharmacopeial names, such names shall be used and the scientific name need not appear." 5. Declaration of Composition of Non-medicinal Articles "Accepted But Not Described." The Council declared that the rule for declaration of composition of accepted medicinal articles should also apply to non-medicinal articles and voted to revise the statement concerning non-medicinal articles "Accepted but not Described" (New and Non-official Remedies, 1932, page 492), to read as follows: *Non-medicinal* Articles.—Articles which have been examined by the Council, which are not advertised as therapeutic agents, the composition or essential ingredients of which are quantitatively declared on the label and in the advertising, and the use of which under ordinary circumstances is, in the opinion of the Council, not contrary to the public welfare. (Jour. A. M. A., March 4, 1933, p. 660).

Book Announcements

The History of Dermatology. By WM. ALLEN PUSEY, A. M., M. D., LL.D., Professor of Dermatology Emeritus, University of Illinois, etc. Charles C. Thomas. Springfield, Illinois and Baltimore, Maryland. 1933. Octavo of 223 pages. Illustrated. Cloth. Price, $3.00.

William Allen Pusey, sometime President of the American Medical Association, and the American Dermatological Association, did not arrive to this pre-eminence accidently. It is true that he has ranked for years with the foremost of American Dermatologists and his textbook on Diseases of the Skin is, in the opinion of the reviewer, the most desirable of American textbooks on the subject. Books are to be read, and some books though valuable in text lack so in readableness, as to make them boring. This charge can never be laid at Dr. Pusey's door, and the outstanding virtue of his textbook, after meeting scientific criteria, is its pleasant style and attractive English. Indeed, after hearing him speak many times and noting the language of extemporaneous occasions, a suspicion begins to form, that in his elevation to high office, the influence of good English cannot be overlooked. His latest work is

the History of Dermatology, published by C. C. Thomas.

The casualness of the presentation is artistic in that it hides the amount of work necessary for its production. The style is easy and flowing and it is very readable. A Dermatologist can hardly lay it down and it must have a large charm for anyone interested in the history of medicine. Dr. Pusey carries the subject from era to era. Necessarily certain men stand out in these eras and of these, short biographies are given. The advance of the specialty in this way switches from one country to another and the story becomes a biography of those who created the successive steps in dermatological progress.

It is almost a pity that someone else could not have written the part of modern dermatology in America for modesty has dictated he should ignore his own achievements. He mentions the use of Carbon Dioxide Snow in skin therapy but does not mention himself as the father of this valuable procedure. Nor does his pioneer work in X-ray therapy receive any mention. This is, no doubt, acting the part of the gentleman physician, but such books become future references and if other editions follow, at least a footnote would not be out of place, giving facts without comment.

A most valuable appendix is an historical index of Dermatology. This gives alphabetically the list of dermatological conditions. It states who discovered, or named them, and provides a reference for future reading. This alone makes the book worthy of place in any library.

THOS. W. MURRELL, M. D.

Infants and Children. Their Feeding and Growth. By FREDERIC H. BARTLETT, M. D., Director of the Department of Pediatrics, Fifth Avenue Hospital, New York City. Farrar & Rinehart, Inc., New York. 1932. 424 pages, complete index. Price, $1.50 net.

This book, as the author explains in the preface, is written especially for the parents of healthy infants and children. He has given a great deal of advice which should be very helpful to parents, at the same time warning them that the physician must be sent for early when the infant or child is not doing as well as it should.

The chapters on feeding inform the reader that normal babies, in due time, will thrive on most any of the common types of food if not overfed and that all new foods should be given at first in small amounts to be gradually increased.

Such subjects as care, training, and habits of the infant and child should prove interesting and instructive to parents, as they are written in a very simple and clear manner.

Contagious and other common diseases are touched upon, giving the reader some insight as to their prevention. The prevention of scarlet fever through active immunization was not mentioned. However, it could have been, since protection has been ably demonstrated in hospitals where nursing staffs have been well protected through immunization against the disease.

Emergency treatments for the common pois onings and accidents are dealt with in the final chapter.

Dr. Bartlett's book should prove to be a great comfort to those parents who desire to have a guide on their table for reference as to the feeding and handling of infants and children.

LEE E. SUTTON, JR., M. D.

The Aetiology of Tuberculosis. By DR. ROBERT KOCH, with an Introduction by DR. ALLEN K. KRAUSE. Published by the National Tuberculosis Association, 450 Seventh Avenue, New York City. March, 1932. Cloth. Octavo of 48 pages.

This book is a translation from the German of the original paper announcing the discovery of the Tubercle Bacillus, read before the Physiological Society in Berlin, March 24, 1882, and published in the *Berliner Klinische Wochenschrift*, 1882, xix, 221, specially prepared for *The American Review of Tuberculosis*, March, 1932, by Dr. and Mrs. Max Pinner.

Hospital Service in the United States. 1933. Twelfth Presentation of Hospital Statistics by the Council on Medical Education and Hospitals of the United States. The 1932 Census of Hospitals. Reprinted from the Hospital Number of the Journal of the American Medical Association. March 25, 1933. Price, 50 cents.

The National Society for the Prevention of Blindness. The Prevention of Blindness and the Conservation of Sight as a Cooperative Movement; The Eye Physician in Industry; Vision Testing for the Young Child; Will History Repeat Itself?; Curriculum Problems in Sight-Saving Classes; Facts and Fallacies Concerning Squint (Cross-Eye); Illumination and Eyesight in Industry; Eye Accidents in Child Play; The Importance of Social Service and Follow-up in Preventing Blindness; Medical Social Service in Saving Sight; Social Hygiene and Prevention of Blindness Pamphlets published by the National Society for the Prevention of Blindness, 450 Seventh Ave., New York City. These range in price from 5c to 15c.

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All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

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VOLUME 60 MAY, 1933 No. 2

Editorial

Symptoms in Cerebral Arteriosclerosis.

Cerebral arteriosclerosis is the most common of the disorders of the blood vessels in the brain. An associate of high blood pressure, elicited by testing the arterial pressure in the arm, cerebral arteriosclerosis forms the needed background of that vascular accident, cerebral hemorrhage. Cerebral hemorrhage suddenly places the patient in the state of unconsciousness, paralysis and impending death. Such a picture of extreme danger is common in the practice of practitioners. It occurs in the instance of the busy man, at his office or work, or the laborer; it occurs in the instance of elder women or middle-aged women. The accident of cerebral hemorrhage may cause immediate death; it may produce a condition of profound stupor with distress in breathing and cardiac action; it may leave the patient semi-conscious and yet paralyzed; it may produce no deep or marked effect upon the conscious state, but the evidence of various degrees and locations of paralysis. Such a clinical entity, with various manifestations, forms a not infrequent problem of practice without previous warning or knowledge. Further, such a profound clinical state may be in the offing of certain cerebral and systemic symptoms, and, it is reasonable to assume, may be interpreted as such by careful inquiry.

Patients with cerebral arteriosclerosis come complaining of headache, dizziness, ringing in the ears, a knocking sensation in the head, a fullness in the head, and an inability to concentrate. Such patients may be irritable. Mental symptoms may occur. There may be signs of memory impairment, emotional disturbance, periods of mental confusion, loss of confidence, delusions, speech disturbances, visual disturbances, and like mental disturbances. The strain of modern life, the unusual tax and stress of present economic conditions, the prevalence of irritating and vexing environment, insomnia, drug addictions, alcoholic and other stimulants of the present-day type and methods of addiction, seem, it would appear, to bring to the fore of clinical practice a larger incidence of such cases. Practitioners may require extraordinary patience to pursue to a true analysis the complaint of the periodic patient, who gives expression to symptoms bordering upon the type heretofore suggested. A case of high blood pressure, coming to the office because of insomnia and seeking some soporific relief, may be the patient who is all but the victim of cerebral vascular accident of one sort or another.

With such observations, one may thoughtfully peruse a recent paper by Sands,* which forms the suggestive reference for this running comment. This condition so frequently falls within the purview of the family physician, the general practitioner and the internist, that a review of the vascular mechanism of the brain as placed before the reader by this paper would seem most salutary.

Sands draws attention to the disproven old idea of end arteries in the brain, and to the

*J. A. M. A., November 5, 1932, page 1599.

demonstration that the capillary bed of the whole cerebral cortex is an endless network and free anastomosis exists between the capillaries of the surface and the depth of the brain. He points out further work showing the presence of nerve endings in the pial vessels and intracerebral vessels whereby stimulation of the vagus causes dilatation, and stimulation of the sympathetic causes constriction. Such facts are of significance as one evaluates and interprets the complaints of patients with cerebral symptoms and high blood pressure.

Sands draws attention also to the Virchow-Robin lymphatic spaces in the adventitial sheaths of the cerebral arteries. This anatomical finding is more or less accepted by many workers in neuropathologic material. It is this system which would seem to be needed to assist in the elimination of catabolic substances occurring in the brain, when under the stress of the environment of the present times and under the incubus of arteriosclerotic changes in the cerebral vessels.

On a basis of the above, one may follow Sands' observation in regard to the subject of vascular spasm. It is quite conceivable, says Sands, that the artery may respond to some irritating toxin circulating in the blood. He also states that the cerebral vascular spasm may be responsible for various gastro-intestinal and possibly some so-called neurotic symptoms that are present in people suffering from arteriosclerosis. May it not cause transitory hemiplegia, hemianopia, aphasia, and hallucinations? Whether or not such inquiry may be substantiated by anatomical proof or post-mortem findings is a question. But it is not beyond reasonable assumption that important and ominous disturbances are at work in the face of such presenting symptoms. Practitioners may "view with alarm" patients complaining of such mental dysfunctionings. This viewing with alarm may be interpreted as taking a wise professional attitude towards a grave intracranial possibility that may threaten the usefulness and life of the complainant who is, for the moment, under professional care.

It is the common experience of practitioners that such patients may be "snatched a brand from the burning," so to speak, if proper precautions are employed. The precautions are, of course, not always so easy to put into practice, for many reasons. But the difficulties presenting should in no way deter the attempt or the effort to employ the measures that offer a possible escape from the effects of cerebral hemorrhage.

It is a common experience of practitioners that such patients, even after cerebral accident with brain hemorrhage, may be able to lead comfortable and sometimes useful lives for years, sometimes decades. The possibility of such a rescue from an untimely end may well stimulate every general medical examiner to be on the alert to properly interpret cerebral symptoms associated with arteriosclerosis.

Harmful Effects of Nitroglycerin.

As one comes along the years, employing a drug, one feels a certain sort of certainty and confidence in its effects and results. Co-temporaneously with the history of blood pressure records, nitroglycerin has held a large place. Wide use of it as a vasodilator has made its place important in hypertensive cases. In angina pectoris, it has been a sheet anchor. Patients threatened with angina pectoris have formed the inviolate rule of keeping hypodermic tablets of nitroglycerin in the watch pocket, as a place from which it might be gotten at all times in case of an attack. So it is rather important to practitioners to note the word of caution recently appearing in medical publications concerning its employment in certain conditions. While it is not to be expected that so widely used a drug will be discarded, it is desirable to give due consideration to the statements of observers who have found cause for discriminating use of it.

Prodger and Ayman* critically observed 110 patients to whom nitroglycerin was administered. In this group, four patients displayed alarming reactions. They noted in these instances a rapid and marked drop in blood pressure, a marked diminution in pulse rate, a cold perspiration, weakness, restlessness, anxiety, and pallor. In one case complete heart block was produced.

In coronary thrombosis we have a lesion displaying pain and sometimes hypertension and often characterized by a marked fall of blood pressure. Employment of nitroglycerine in such a disease-condition seems inadvisable and doubtful. While its use for pain in pure angina is often magical and immediate. Clinicians and practitioners may need to exercise most penetrating accuracy in evaluating the

*American Journal Medical Sciences, October, 1932.

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real nature of the malady that suddenly transfixes the afflicted patient with a dreadful pain over the precordium and extending down the left arm. Is it angina or thrombosis? That is the question. Nitroglycerine or no nitroglycerine? What? Time and hospitalization and laboratory examinations will enable the practitioner to more accurately diagnose the malady. So nitroglycerine may be supplanted by other drugs and its ill effects combated if by chance they occur.

One may yet await more extensive criticism and read with judicial reserve the more frequent notices in medical literature of harmful effects of nitrogen. Particularly important should apprehension of trouble be thought probable in coronary thrombosis with a sudden drop of blood pressure.

The "Cure" of Syphilis.

Any discussion of the cure of syphilis claims medical interest. The responsibility of conducting the treatment of syphilis is grave. Fearful and shameful consequences accrue to the patient if adequately treated. On every hand experience of practice offers illustrations of the uncured syphilitic, passing to terminal pathology unchecked. Naturally, years of experience are necessary to reach true values in such therapy. Any thoughtful discussion awakens eager interest of practitioners because the whole question of the cure of syphilis is under serious evaluation and touches the personal responsibility of the practitioner to the syphilitic patient.

The patient comes with the syphilitic lesions or examination discloses positive evidence of specific disease. What plan of treatment offers this patient the best chance for immediate and ultimate security? Touching such a problem, one may find matters of interest in Newcomer's* article. Specific drugs of potency may be had. The cure of the patient, however, results from the interaction of a number of forces. Tissue defense forces contribute and "a lapse of time during which this defense action may evolve is one necessary factor in the cure of the disease." Spirocheticidal action is not the only factor. Hence, Newcomer points out that physicians treating syphilitic patients must keep in mind the relationship between dosage, lapse of time, and therapeutic effect. Deviations from the optimum schedules of treatment can only be judiciously made through clinical experience and judgment. To set up a chart of guidance in such a course of treatment is the main object of Newcomer's paper. Material employed is from the Pennsylvania Hospital. Therapeutic effects are portrayed by two drawings showing surfaces in three dimensions. In the first is found the "therapeutic surface in seropositive, primary and secondary syphilis," and in the second, the "therapeutic surface" in late syphilis. Therein are drawn, vertical lines in three dimensions representing doses of arsphenamine employed; horizontal lines showing years required, and depth lines representing cures in percentage for an average large group of individuals. Intersections of the surface planes give suggestions in doses, time, and percentage factor in cures.

To summarize this suggestive paper, the proper treatment of primary and secondary syphilis requires the administration of thirty to fifty doses of arsphenamine. The doses should be spaced in appropriate courses over a period of one and a half to two years. It is held to give more than fifty in all and to give more than thirty doses in the first year is not advantageous or beneficial. In tertiary syphilis, Newcomer advocates, based on his study, that fifty doses of arsphenamine be given and the best results will be obtained if administrations be made to cover a period of four years—spacing the injections in each course two weeks apart. This "planning" method of treatment requires much of the doctor and much of the patient. The doctor must first orient himself as to the drug, its administration, the great length of time it is to be employed, the deviations from normal in therapeutic tolerance of the drugs and like difficulties. The physician is called upon to so instruct and impress the patient as to the difficulties, dangers, consequencies of the neglect of treatment, and to hold out the possibilities of curing the malady. To obtain the sustained cooperation of the non-institutional patient, it is of utmost importance that frank and candid statement of the situation be made. The patient must know the cruel facts and the patient may be cheered by the favorable experience in percentage of cures when sustained and persistent treatment is carried out through planning of doses and spacing in time for a long period, as advocated in the latest view of syphilologists.

*American Journal Medical Sciences, January, 1933, page 49.

Department of Clinical Education
OF THE MEDICAL SOCIETY OF VIRGINIA

The Department Urges Pediatric Clinics.

At its mid-winter meeting the Council of the Medical Society of Virginia restored to the budget of the Department of Clinical Education $200 of the amount which had been deducted from its appropriation for the current year, the deduction having been made without full information about the total expenses involved in the Department.

With these resources, the President of the Society and the Chairman of the Department are seeking the cooperation of the larger local and regional societies in emphasizing a program of pediatric clinics at least once during this year. Promotion of this subject of study is in accordance with the resolution adopted by the Department of Clinical Education at its meeting in February and reported in the last issue of the MEDICAL MONTHLY.

Eleventh Post-Graduate Clinic at University of Virginia Hospital.

The regular spring clinic for practicing physicians at the University Hospital, on May 4th and 5th, includes the following program:

THURSDAY, MAY 4TH

10:00 A. M.—Digitalis Therapy, by Dr. J. Edwin Wood.

11:00 A. M.—Surgical Treatment of Tuberculosis, by Dr. E. C. Drash.

2:00 P. M.—Diagnosis of Respiratory Affections, by Dr. L. T. Royster.

3:00 P. M.—Vitamins, by Dr. Alfred Chanutin.

FRIDAY, MAY 5TH

9:00 A. M. and continuing throughout the day—Symposium on Malignant Tumors, by Drs. E. P. Lehman, T. J. Williams, J. H. Neff, F. D. Woodward, W. H. Goodwin and V. W. Archer.

The interest in and attendance upon these post-graduate clinics has been so encouraging as to establish them apparently as a permanent part of the University Hospital's plan of medical education. Physicians throughout the state are cordially invited to attend the meetings.

Speakers for Society Meetings.

The Department of Clinical Education has had the privilege during the past month of arranging for speakers to take part in two programs.

At the Clinch Valley Medical Society meeting, at Norton, on April 29th, Dr. Maxwell E. Lapham, Field Clinician of the Medical Society's Joint Committee on Prenatal and Postnatal Instruction, will speak on Home Delivery, with moving picture illustrations; and Dr. C. Bruce Morton, Assistant Professor of Surgery and Gynecology at the University of Virginia, will deal with Some Principles of the Treatment of Peptic Ulcer.

At Staunton, on May 3rd, before the Augusta County Medical Society, Dr. W. W. Waddell, Jr., Assistant Professor of Pediatrics, will speak on Treatment of Diarrhoea in Children, and Dr. H. B. Mulholland, Associate Professor of Medicine, on the subject of Heart Conditions Especially from the Standpoint of the General Practitioner. Both of these speakers are from the University Hospital.

Spring Clinic at the Medical College of Virginia.

On March 22nd and 23rd a series of clinics at the Medical College of Virginia included those in Pediatrics, by Drs. Sam Anderson, Jr., L. E. Sutton, Jr., and F. J. Wampler; in Obstetrics, by Drs. H. H. Ware and Greer Baughman; in Surgery, by Drs. I. A. Bigger, D. Faulkner, G. Paul LaRoque, C. C. Coleman, and in Medicine, by Drs. Manfred Call, James Smith, W. A. Shepherd, W. H. Higgins and J. M. Hutcheson. Each afternoon round-table discussions and ward rounds were held.

The doctors attending expressed themselves as much pleased with the clinics and faculty members felt they were instructive. It is obviously a fact, however, that a larger number of physicians should have taken advantage of this opportunity, and it remains a problem of the Department of Clinical Education to devise means of interesting other practitioners of the state in such clinics as these.

The list of physicians registered for the clinic follows:

DOSWELL—Dr. J. A. Wright

DUMBARTON—Dr. Herbert W. Lewis

Floyd—Dr. R. M. DeHart
Glen Allen—Dr. J. H. Winfrey
Hillsville—Dr. R. R. Goad
Hopewell—Dr. S. E. Gunn
Dr. F. M. Howell
Jetersville—Dr. James M. Habel
Keysville—Dr. J. B. Bailey
Kilmarnock—Dr. E. R. Moorman
Louisa—Dr. H. S. Daniel
Midlothian—Dr. J. B. Fisher
Newport News—Dr. E. L. Alexander
Dr. W. R. Payne
Petersburg—Dr. H. Cantor
Richmond—Dr. J. J. Anderson
Dr. S. J. Baker
Dr. J. C. Blanton
Dr. W. F. Drewry
Dr. H. B. Hinchman
Dr. G. R. Maloney
Dr. Louis Perlin
Dr. R. F. Simms
Dr. H. U. Stephenson
Roanoke—Dr. W. R. Whitman
Sandy River—Dr. J. E. Richardson
Surry—Dr. B. H. Knight
Williamsburg—Dr. J. R. Tucker

Joint Committee on Prenatal and Postnatal Instruction.

Second Year's Program Assured

The Joint Committee has the happy privilege of reporting the generous act of the Commonwealth Fund in not only continuing the tentative grant for prenatal and postnatal instruction but increasing the funds orginally reserved for that purpose. The letter of Miss Barbara S. Quin, Assistant Director of the Fund, to Dr. Lee E. Sutton, Jr., Chairman of the Joint Committee, is as follows:

"It gives me great pleasure to advise you that at the meeting of our Board, held yesterday (April 18th), the following action was taken in connection with the courses on post-graduate prenatal and postnatal instruction: (1) the balance of $2,500 remaining from the first year's appropriation was made available for the work of the second year; (2) the reservation of $5,000 was appropriated, to be paid to such extent as may be required.

"Everyone was exceedingly gratified at the excellent results of the first year's work, and we most sincerely hope that the second year will be equally encouraging, as we haven't the slightest doubt it will."

Virginia Attracts Outside Attention

Post-graduate prenatal and postnatal instruction in Virginia will be presented by invitation of the New York Maternity Center Association at a luncheon at the Waldorf-Astoria on May 12th.

Very fittingly this report on the Medical Society's state-wide educational program will be made by Dr. J. Allison Hodges, a founder and first chairman of the Department of Clinical Education, and a prime mover from the beginning in the establishment of the Joint Committee and in the conduct of its work. Dr. Hodges also reports several large conference groups and two state societies have written him for information, and the White House Conference on Child Health and Protection has also studied Virginia's effort.

Post-Graduate Courses in Southwest Virginia

The cumulative effect of the program of intensive post-graduate instruction in prenatal and postnatal care was abundantly illustrated in the general eagerness of the physicians of Southwest Virginia to organize groups for Dr. Lapham's courses during the summer. During the week of March 20th-25th, the Secretary of the Joint Committee visited meetings of five county medical societies and three groups of interested physicians; all the meetings except one were especially called to discuss the organization of these classes. From these discussion ten classes have resulted, so that the Joint Committee is justified in tentatively assigning its Field Clinician to the one section of the state for twenty consecutive weeks.

The organization meetings were generally small, as these organization meetings habitually are—a great many more physicians will enroll for a class of study than will appear to arrange for a class. Everywhere, however, the most whole-hearted cooperation was in evidence, a fact which may be demonstrated by the statements that every physician practicing obstetrics except one enrolled for the classes and at least a dozen more than were present enrolled by proxy.

The arrangement of the Southwestern circuits, with centers and days of meeting, local committees in charge of the courses, and advance enrollments, are as follows:

Fifth Circuit

Fremont or Clintwood: The class meets on Mondays, beginning May 1st. Local committee in charge of membership and clinical material: Chairman, Dr. J. C. Moore, Drs. R. L. Phipps and J. S. Richardson. Advance enrollments: Drs. J. C. Moore and R. L. Phipps.

Norton: The class meets on Tuesdays, beginning May 2nd, at 1:00 P. M., in the Post Office Building. Local committee: Chairman, Dr. F. S. Givens, Drs. T. J. Tudor and W. R. Culbertson. Advance enrollments: Drs. E. P. Cox, W. R. Culbertson, G. T. Foust, F. S. Givens, C. L. Harshbarger, N. W. Stallard, T. J. Tudor.

Stonega: The class meets on Wednesdays, beginning May 3rd, at 10:00 A. M., in Stonega Hospital. Local committee: Chairman, Dr. J. H. Hagy, Drs. F. E. Handy and William A. Baker. Advance enrollments: Drs. J. H. Hagy, S. H. Rivers, C. B. Bowyer and the six other members of his staff.

Gate City: The class meets on Thursdays, beginning May 4th. Local committee: Chairman, Dr. J. M. Dougherty, Jr., Drs. A. McG. Wallace and H. K. McConnell. Advance enrollments: Drs. J. M. Dougherty, Jr., V. W. Quillen and A. McG. Wallace.

Pennington Gap: The class meets on Fridays, beginning May 5th, at 2:00 P. M., in the High School Building. Local committee: Chairman, Dr. J. B. Muncy, Drs. C. H. Henderson, T. B. Ely and W. J. Innes. Advance enrollments: Drs. D. O. Hamblin, C. H. Henderson, T. H. Hutchinson, W. J. Innes, J. B. Muncy and M. B. Payne.

Sixth Circuit

Tazewell: The class will meet on Mondays, beginning July 10th. Local committee: Chairman, Dr. P. D. Johnston, Drs. J. N. Higginbotham, J. P. Williams, H. B. Frazier and W. H. Ballard. Advance enrollments: Drs. M. J. Alexander, J. N. Higginbotham, W. I. Painter, Isaac Peirce and Frank Pyott.

Lebanon: The class will meet on Tuesdays, beginning July 11th. Local committee: Chairman, Dr. R. F. Gillespie, Drs. P. J. Bundy and W. C. Elliott. Advance enrollments: Drs. P. J. Bundy, S. C. Couch, W. C. Elliott, R. F. Gillespie and C. P. Greear.

Bristol: The class will meet on Wednesdays, beginning July 12th. Local committee: Chairman, Dr. W. K. Vance, Jr., Drs. T. R. Bowers, C. W. Fleenor and E. H. Hearst. Advance enrollments: Drs. T. R. Bowers, A. J. Edwards, C. W. Fleenor, E. H. Heart, George G. Keener, M. G. Rock, W. H. Teeter, D. D. Vance and W. K. Vance, Jr.

Abingdon: The class will meet on Thursdays, beginning July 13th. Advance enrollments: Drs. L. F. Cosby, H. M. Hayter, L. M. Hines, D. F. Kinsolving, R. L. Hillman, H. W. Smeltzer, J. A. Soyars.

Marion: The class will meet on Fridays, beginning July 14th. Local committee: Chairman, Dr. A. B. Graybeal, Drs. T. K. McKee and G. D. Pettit. Advance enrollments: Drs. E. A. Holmes, R. D. Campbell, Z. V. Sherrill and C. A. C. Sherrill.

Dr. Lapham's Short Course in Bedford

All of the ten physicians in Bedford county (one other had joined the Lynchburg class in prenatal and postnatal care last spring), enrolled for the intensive two weeks' course Dr. Lapham conducted from April 10th to 21st. During the first week one was prevented from coming; but the other nine, in spite of the strenuous nature of a course that superimposes a two-hour meeting every day upon the usual duties, had achieved through the first half of their work a higher average of attendance than for any previous group, 86.7 per cent.

Fourth Circuit Has a Good Ending

The tangible facts upon which the Joint Committee can base a judgment of the success of its program are of two kinds, attendance and comment of members. The attendance for the fourth circuit, as presented in the table below, shows that each of seventy-five physicians attended, on the average, three-fourths of the meetings; but if really complete records could be made, the actual attendance rate would be much higher. There is, for instance, no allowance for cases of necessary absence on the part of members. Still more troublesome is the determination of bona-fide members. The Norfolk class rate would have been increased by 20 per cent, and the rate for the circuit would have been raised six points, if four members who enrolled but attended only one meeting, had been disregarded.

There is no possible doubt to be cast upon the favorable response of members to the Joint Committee's request for a frank expression of opinion as to the value of the course. Each of thirty-two replies rated the lectures as excellent or good, and declared the course had been worth the cost in time and money; all except one avowed an interest in future similar courses in other branches, and seventeen marked

the clinics as excellent or good, while twelve marked them as fair or passable, usually explaining that there was a lack of clinical material for which the instructor could not be blamed.

The figures on enrollment, average attendance and percentage of attendance for the classes of the fourth circuit are as follows:

	Enrolled Members	Average Attendance Including Visitors	Per Cent Attendance of Members
Suffolk	10	11.3	85.0
Franklin	7	5.7	72.9
Portsmouth	16	14.2	81 9
Norfolk	26*	19.8	67.1
Norfolk (Colored)	18	13.5	70.6
Total	77*	64.5	74.5

*Two enrolled members, one of whom paid the fee but neither of whom attended, are included in the total enrollment but omitted in the computation of percentage of attendance.

What the Members Think

To date the scoring of comment in regard to the value of the courses in prenatal and postnatal care shows the following results: 163 of 168 replies consider the lectures either excellent or good; 80 of 150 replies consider the clinics either excellent or good; 155 of 160 replies consider the course worth the cost in time and money; 153 of 159 replies assert interest in future courses in other subjects.

George W. Eutsler,

Secretary of the Department, and of the Joint Committee.

Proceedings of Societies

Norfolk County Medical Society All-Day Clinic.

The Annual All-Day Clinic of the Norfolk County Medical Society, held on Wednesday, April 12th, proved as successful as was to be expected in the light of previous occasions of the same nature. Unfortunately a very heavy rain in the early morning undoubtedly prevented a much larger attendance of physicians from outside points; but, as it was, there were many from adjacent districts in Virginia and North Carolina, while, as a matter of course, the profession in Norfolk and Portsmouth was very largely in evidence.

One admirable feature was the same promptitude and rigid adherence to time limits that has characterized all of the similar clinics sponsored by the Society. This is essential where a full program is provided, but is too often disregarded. The Chairmen have always been requested in these Clinics to adhere strictly to the printed program, and their complete compliance with this request has added materially to the success that has attended the movement.

The excellent program was followed absolutely, not a single failure to follow the detailed arrangement occurred. No subject presented lacked practical interest, though of course some were especially outstanding. The general verdict was that the day was one of more than ordinary helpfulness to all attending. It has always been the aim to provide a program dealing with every-day problems rather than with extraordinary conditions.

It is the expectation of the Society to present similar Clinics annually.

On the social side, the luncheon provided by St. Vincent's Hospital and the buffet supper at the Norfolk Country Club, were greatly appreciated, affording opportunity for friendly intercourse.

The address of Dr. Harold L. Amoss, of Duke University, on the Treatment of Streptococcic Pneumonia, was instructive and much enjoyed by the large gathering of physicians. Dr. Amoss will be a welcome visitor at any time in future.

The committee in charge of this year's clinics was: Dr. C. J. Andrews, Dr. F. C. Rinker, Dr. Julian L. Rawls, Dr. Wm. Lett Harris, and Dr. Walter B. Martin.

The Roanoke Academy of Medicine

Held its regular meeting at the Roanoke Hospital on April 10th. The program was in charge of Dr. John O. Boyd and the following papers were presented by members of the hospital staff:

Hereditary Deforming Chrondrodysplasia. Dr. Chas. H. Peterson.

(1) Congenital Absence of Clavicles. Case Exhibit.

(2) Fracture of Spinous Process of Cervical Vertebra by Muscular Contraction. Dr. Wm. C. Stephenson.

Congenital Heart Disease. Case Exhibit. Dr. J. E. Gardner—Dr. W. H. Saunders.

Clinical Experience with Recurrent Lithiasis. Illustrated by lantern slides. Dr. L. D. Keyser.

Vesical Calculus in Child, with Bilateral Hydronephrosis. Dr. George Johnson—Dr. T. D. Armistead.

Congenital Syphilis. Dr. J. M. Bishop.

Clinical Interpretation of Schilling Blood Count. Dr. H. M. Escue.

Clinical Observations in Pulmonary Tuberculosis. Dr. Fred Oast.

A New Method for the Internal Fixation of Transcervical Fractures of the Femur. Illustrated by motion pictures. Dr. H. H. Wescott.

Dr. R. H. Garthright, of Vinton, Va., read "An Autobiography of a Physician's Saddle Bags." This paper was written on the occasion of the presentation to the Medical College of Virginia's Museum of Dr. Garthright's saddle bags, which he used for many years.

Dr. George M. Maxwell read a poem which supplemented Dr. Garthright's excellent paper.

The Southwestern Virginia Medical Society

Held its regular semi-annual meeting at Pulaski, Va., on March 24th, with an attendance of sixty-five members. There were two sessions, starting with a luncheon meeting. At this time there was a symposium on Breast Cancer, with papers by Drs. H. M. Hayter, of Abingdon; H. W. Bachman, of Bristol; Beverley F. Eckles, of Galax, and J. T. McKinney and H. H. Trout, of Roanoke. Dr. K. D. Graves, of Roanoke, presented a paper on Heart Pain. There was a banquet at 7 P. M. Following an address of welcome by the mayor, with response by Dr. O. A. Weatherly, of Radford; Dr. M. E. Lapham, working in Virginia, under the auspices of the Joint Committee on Prenatal and Postnatal Instruction of the State Society, gave an address on Home Delivery, with movie illustrations.

Dr. J. A. Noblin, East Radford, is president, and Dr. H. W. Bachman, Bristol, secretary-treasurer.

The Northampton County Medical Society

Held its regular quarterly meeting on April 5th, at the Eastville Inn, Eastville, Va. Dr. E. W. P. Downing gave a paper on his Reminiscences of Forty-eight Years of Practice. Dr. John Hamilton gave a report of the Committee on Cost of Medical Care.

Dr. W. Carey Henderson and Dr. W. T. Green, both of Nassawadox, are president and secretary, respectively.

News Notes

Dates Selected for State Meeting.

The Lynchburg Academy of Medicine, Inc., has confirmed the dates of October 24th, 25th and 26th, tentatively selected by the Council of the Medical Society of Virginia, for its 1934 meeting, in Lynchburg.

It is hoped that all members will look ahead in making plans for vacations, so as to include the State meeting. Lynchburg is in a beautiful section of the State and should be most attractive at the time of our meeting.

Milwaukee Meeting of the A. M. A.

The American Medical Association is to have its annual meeting in Milwaukee, Wis., June 12th-16th, under the presidency of Dr. E. H. Cary, of Dallas, Tex. The House of Delegates will convene on the 12th and the Scientific Assembly will open with the general meeting on the evening of the 13th, at 8:30 P. M.: The House of Delegates will have its sessions in the Grand Ballroom of Hotel Schroeder. Virginia's delegates this year are Dr. Southgate Leigh, Norfolk; Dr. Warren F. Draper, Richmond, and Dr. Dudley C. Smith, University.

The Woman's Auxiliary to the A. M. A. will have interesting sessions and attractive entertainments. The full program for this organization appeared in the April issue of the MONTHLY.

Our State Society Honored

The educational work of the Medical Society of Virginia, in its Department of Clinical Education and Prenatal and Postnatal Ininstruction is being studied by several State medical societies and Health Conference groups at this time. The latest request for details is from the New York Maternity Center Association, that "the state-wide educational program your Society is sponsoring be presented at a maternity education luncheon at the Waldorf-Astoria on May 12th." The speakers on that occasion will be Mrs. Franklin D. Roosevelt, Dr. Walter Chipman, of Montreal; Dr. Linsly Williams, of the New York Academy of Medicine, and Dr. J. Allison

Hodges, of Richmond, representing the Medical Society of Virginia, as one of the organizers of this movement in our state.

Tuberculosis Abstracts.

Abstracts from an article by Dr. J. Arthur Myers, which appeared in the *American Review of Tuberculosis*, February, 1933, are reprinted on a sheet which appears as a supplement to this issue of the VIRGINIA MEDICAL MONTHLY.

This article on examining tuberculosis contacts is very timely at the season, when the Virginia Tuberculosis Association and its local branches are joining in the nation-wide "Early Diagnosis Campaign." This campaign brings the subject of tuberculosis before countless groups with talks and literature urging the medical examination of tuberculosis contacts.

The Virginia Tuberculosis Association reports that it is receiving the hearty support and co-operation of the medical profession in this educational movement in various sections of the State.

The Virginia Society of Oto-Laryngology and Ophthalmology

Is to hold its annual meeting in Harrisonburg, Va., May 6th, starting at 9:30 A. M. The guests of honor will be Dr. Samuel Joseph Kopetsky, of New York, who will talk on "Problems Concerned with Petrositis," and Dr. Thomas D. Allen, of Chicago, whose subject will be "Dissecting Blebs Following Fistualization Operations." Dr. Frank P. Smart, Norfolk, is President, and Dr. H. Grant Preston, Harrisonburg, Secretary.

The date was selected with the hope that it would be near time of the Apple Blossom Festival and also that it would be possible for members to attend the meetings of the American Ophthalmological and American Otological Societies in Washington, D. C., on May 8th.

Married.

Dr. Hawes Campbell, Jr., of the class of '32, Medical College of Virginia, and Miss Ellen James Hudgens, Richmond, April 14th. Dr. Campbell is at present serving an internship at Johnston-Willis Hospital, Richmond.

Dr. Wilmore R. Sherrick and Mrs. Helen Crouch Long, both of Richmond, March 25th.

Dr. Irwin Clay Hanger, son of Mr. and Mrs. Franklin M. Hanger, of Staunton, Va., and Miss Sarah Baldwin, of Cleveland, O., April 8th. Dr. Irwin Hanger has been located in Cleveland for some time and is connected with the staff of the Lakeside Hospital in that city.

Dr. Lawrence Lincoln Beall, Durham, N. C., and Miss Virginia Graham McLean, Cleveland, Miss., April 16th. Dr. Beall is an alumnus of the Medical College of Virginia, class of '31, and later interned at Union Memorial Hospital, Baltimore.

The West Virginia State Medical Association

Is to hold its annual meeting in Charleston, May 22nd-24th, under the presidency of Dr. D. A. MacGregor, of Wheeling. There will be several out-of-state speakers and indications are that this will be a most successful meeting, both socially and scientifically.

Richmonders Attend Southern Society of Clinical Surgeons.

Dr. I. A. Bigger, Dr. John S. Horsley, Jr., and Dr. Carrington Williams, of Richmond, attended the seventh annual meeting of the Southern Society of Clinical Surgeons in Boston, April 3rd, 4th and 5th.

The Medical Association of the Valley of Virginia

Is to hold its next meeting in Clifton Forge, Va., on May 25th, and an interesting program is promised. Dr. H. Grant Preston, Harrisonburg, is president, and Dr. Alex. F. Robertson, Jr., Staunton, secretary.

Correction.

Dr. W. R. Bond, Richmond, a contributor to the April, 1933, issue of the MONTHLY, has called attention to an error occurring in his paper, The Treatment of Acute Arsenic Poisoning, appearing in that number.

In Mortality Table V, the antidote appears as sodium thiosulphate. This should read sodium *hydrosulphite*. The nomenclature of these compounds is quite unfortunate, and sodium hydrosulphite must be clearly differentiated from the thiosulphate or hyposulphite. The hydrosulphite precipitates with arsenous compounds the relatively non-toxic subsulphide of arsenic, while thiosulphate yields at first the thiosulphate of arsenic, which is equally as toxic as the original arsenic preparation.

Dr. E. Terrill Montgomery

Has located for the practice of medicine in New York City, with offices at 19 West 55th Street. He is a native of Richmond, and graduated from the Medical College of Virginia in 1930, following which he served an intern-

ship at the U. S. Marine Hospital, in New Orleans, La.

News from the University of Virginia, Department of Medicine.

On March 6th, Dr. Bruce Morton spoke before the Roanoke Academy of Medicine, on End Results of Treatment of Peptic Ulcer.

Dr. Edwin P. Lehman served as Visiting Professor of Surgery at the Emory Medical College from March 13th to 18th.

On April 14th, Dr. Lehman read a paper on Sympathetic Syndromes of the Extremities, before the meeting of the Ohio County Medical Society, in Wheeling, W. Va.

On February 14th, Dr. J. Edwin Wood spoke before the County Medical Society in Danville, Va., on the subject of Clinical Detecton and Management of the Cardio-Vascular Irregularities.

On March 20th, Dr. Walter B. Cannon, Professor of Physiology at the Harvard Medical School, gave a lecture on his recent experimental work which led to his discovery of Sympathin.

The William Webster Root Memorial Alpha Omega Alpha Lecture, was delivered on the occasion of the annual initiation of new members on April 14th, by Dr. A. N. Richards, Professor of Pharmacology at the University of Pennsylvania. The subject of the lecture was Microchemical Study of Renal Function.

Dr. J. Shelton Horsley, Richmond, has been elected an alumnus member of the Sugma Xi national society, for the promotion of scientific research at the University of Virginia.

Dr. Vincent W. Archer, of the University faculty, was also given membership.

News Notes from the Medical College of Virginia.

Dr. Stuart McGuire and President W. T. Sanger represented the college at a meeting of the West Virginia alumni in Charleston, W. Va., April 11th. Despite the heavy rains, fifty-three were present at this meeting. Dr. S. W. Price, of Scarboro, W. Va., was elected president; Dr. Roy Miller, of Parkersburg, W. Va., vice-president, and Dr. W. L. Cook, of Charleston, W. Va., secretary. It is planned to have one general meeting of the West Virginia alumni annually.

The number of patients for the outpatient department for March totalled 6,569, which is the largest month in the history of the clinic. The greatest number of patients for any one day was 300, which is also a record for the clinic.

Dr. Richard C. Cabot, of the medical school of Harvard, spoke to the students of the college April 4th. His subject was "Truth in Medicine."

Mr. Harold Beamer, of Pulaski, Va., a graduate of the school of pharmacy '32, was a recent visitor to the college.

Dr. J. C. McCracken, Professor of Surgery and Dean of the Medical Department, Saint John's University, Shanghai, China, was an interesting visitor recently.

Dr. Sidney S. Negus, Mr. R. F. McCrackan, Dr. J. C. Forbes, Dean Wortley F. Rudd, and Dr. W. G. Crockett, of the Department of Chemistry, attended the annual spring meeting of the American Chemical Society, Washington, D. C., March 27th-30th.

Alumni visiting the college during March were Dr. C. C. Cochran, '21; Dr. R. W. Holley, '99; Dr. Ennion S. Williams, '30.

Dr. H. B. Haag and Dr. R. J. Main attended the meetings of the American Physiological Society and American Society for Pharmacology and Experimental Therapeutics in Cincinnati, O., April 10th-15th.

Dr. Everett Ingersoll attended the meetings of the American Anatomical Society in Cincinnati, April 12th-15th. Dr. Ingersoll presented a paper at this meeting on his study of sympathetic nerve cells.

Approximately 175 students will receive diplomas at the close of the present academic year. The commencement exercises will be held from May 27th to 30th, with Dr. Julian Burruss, President of the Virginia Polytechnic Institute, delivering the commencement address on the last day.

XUM

Dr. Charles M. Walthard,

Of Berne, Switzerland, Lecturer in Neurology at the University of Zurich, has been a recent visitor to Dr. John S. Horsley, Jr., and Dr. Guy Horsley, of Richmond.

Faculty and Staff Meeting, Medical College of Virginia.

Dr. I. A. Bigger, Chairman, announces that the regular scientific monthly meeting of the Faculty and Staff of the Medical College of Virginia will be held on Thursday, May 4, 1933, at 8:15 P. M., in the auditorium of Cabaniss Hall. The program will be as follows:

1. "The Amplification and Registration of Heart Sounds"—Dr. W. R. Bond.
2. "The Relation of the Anatomy and Physiology of the Bladder to Frequency of Urination"—Dr. A. I. Dodson.

Dr. John M. Bailey,

Formerly of Hopewell, Va., having completed the necessary requirements for the degree of Master of Science in Internal Medicine at the Post-Graduate School of Medicine of the University of Pennsylvania, Philadelphia, has located in Richmond, Va., with offices in the West End Medical Building. He will be engaged in the practice of cardiology and gastroenterology.

Dr. F. M. Leech,

Lexington, Va., was recently elected President of the Tribrook Golf and Tennis Club of that place, for the coming year.

Additional Books Available to Members of Medical Society of Virginia.

In addition to books listed in last issue of the Monthly, the following, all received since the beginning of 1930, are in the Library of the Medical College of Virginia. They may be borrowed by members of the Society at any time, the only cost being return postage. A number of our readers have already availed themselves of this service:

Allen, Edgar—Sex and the Internal Secretions.
Angell, Norman—The Story of Medicine.
Bagby, English—The Psychology of Personality. An Analysis of Common Emotional Disorders
Beatty, R. T.—Hearing in Man and Animals.
Beck, Dorothy Fahrs—The Cost of Equipping a Dental Office.
Beekman, Fenwick—Office Surgery.
Benedict, Francis G—The Physiology of Large Reptiles. (Carnegie Inst. pub)
Blacklock, John W. S.—Tuberculous Disease in Children.
Bolam, T. R.—The Donnan Equilibria.
Bradley, Alice V.—Tables of Food Values.
Castle, W. E.—Contributions to the Genetics of the Domestic Rabbit.
Castle, W. E.—Genetics and Eugenics.
Crossen, Harry Sturgeon & Crossen, Robt. James—Synopsis of Gynecology.
Daniel, Robt. P.—A Psychological Study of Delinquent and Non-Delinquent Negro Boys.
Davenport, Chas. B.—The Genetical Factor in Endemic Goiter.
Dobell, Clifford—Antony Van Seevwenhock and His "Little Animals."
Engelbach, Wm.—Endocrine Medicine.
Epstein, Harry B.—William Shakespeare. M. D.
Fishberg, Arthur M.—Hypertension and Nephritis
Gates, Arthur I.—Psychology for Students of Education.
Goldsmith, G. W. & Hofenrichter, A. L.—Anthokinetics—The Physiology and Ecology of Floral Movements.
Gunn, J. A.—An Introduction to Pharmacology and Therapeutics.
Harris & Finesilver—Normal Facts in Diagnosis.
Heinrich, H. W.—Industrial Accident Prevention.
Hiscock, Ira V., editor—Community Health Organization.
Hogben, Lancelot—Genetic Principles in Medicine and Social Science.
Hoskins, R. G.—The Tides of Life.
Hutton, Isabel Emslie—The Sex Technique in Marriage.
Jensen, Deborah MacLurg—Student's Handbook on Nursing Case Studies.
Keith, Arthur—The Antiquity of Man.
Koch, Robt.—The Aetiology of Tuberculosis.
Krafft, Carl F.—Can Science Explain Life?
Krafft, Carl F.—The Mechanistic Autonomy of Nature
Lewis, Thomas—Diseases of the Heart.
Logie, H. B., ed.—A Standard Classified Nomenclature of Disease.
Lower, Richard—De Corde (London 1669) Oxford Univ. Press, 1932.
Lynch, Kenneth M.—Protozoan Parasitism.
Lynde, Carleton John—Everyday Physics.
Maranon, Gregorio—The Climacteric.
McDowall, R. J. S.—The Science of Signs and Symbols.
McPheeters, H. O.—Varicose Veins
Medical Research Council—Third Report of the Miner's Nystagmus Committee.
Miller, C. Jeff—Clinical Gynecology.
Miller, C. Jeff—An Introduction to Gynecology.
Mock, Harry E., et als., eds.—Principles and Practive of Physical Therapy.
Moll, Albert—The Sexual Life of the Child.
Moss, Fred A.—Psychology for Nurses.
Munby, Alan E.—Laboratories. Their Plannings and Fittings.
Needham, Dorothy Moyle—The Biochemistry of Muscle
New Pharmaceutical Syllabus, The.
Noyes, Wm. Albert—Modern Alchemy.
Parsons, Robt. P.—History of Haitian Medicine.
Paullin, Chas. O.—Atlas of the Historical Geography of the U. S.
Piney, A.—Recent Advances in Haematology.
Pintner, Rudolph—Educational Psychology.
Pitkin, Walter B.—Life Begins at Forty.
President's Research Committee on Social Trends—Recent Social Trends in the U. S.
Prinzhorn, Hans—Psychotherapy.
Pusey, Wm. Allen—The History of Dermatology.
Simpson, Clarence O.—Advanced Radiodontic Interpretation.

Small, Lyndon—Chemistry of the Opium Alkaloids.
Swenson, Merrill G.—Outline of Full Denture Prosthesis.
Vallery-Radot-Pasteur—L'Asthme Bronchique
Wagoner, Geo. & Custer, R. Philip—A Handbook of Experimental Pathology.
Walsheil, Arthur John—Abdominal-Pelvic Diagnosis in Women.
Watt, John Mitchell—The Medicinal and Poisonous Plants of Southern Africa.
White House Conference on Child Health and Protection—
Body Mechanics.
Hospitals and Child Health.
Health Protection for the Pre-School Child.
Nutrition Service in the Field.
Obstetric Education.
Psychology and Psychiatry in Pediatrics: The Problem.
Worms, G. & neé J. M.—Les foyers amygdaliens.

The following list pertains entirely to "Economics":

Adams, A. B.—Economics of Business Cycles.
Angell, Norman—The Story of Money.
Bogart, E. L.—Economic History of the American People.
Bradford, F. A.—Banking.
Bradford, F. A.—Money.
Chase, Stuart—A New Deal.
Edie, L. D.—Money. Bank Credit, and Prices.
Ely, R. T.—Outlines of Economics.
Faulkner, H. U.—American Economic History.
James, Cyril—The Economics of Money, Credit and Prices
Lincoln, E. E.—Applied Business Finance.
Lutz, H. L.—Public Finance.
Mitchell, Broadus—A Preface to Economics.
Moulton, Harold—The Financial Organization of Society.
Rodkey, R. G.—The Banking Process.
Smith, Adam—Wealth of Nations.
Taussig, F. W.—Principles of Economics.
Tugwell, Munro & Stryker—American Economic Life.
Willis & Beckhart—Foreign Banking Systems.

The American Board of Obstetrics and Gynecology

Will hold its next general, clinical examination in Milwaukee, June 13th, the first day of the meeting of the American Medical Association. The annual dinner and Round Table Conference will be held on the following evening. For further information and application blanks, address the Secretary, 1015 Highland Building, Pittsburgh, Pa.

Merck's New Research Laboratory Dedicated.

Sir Henry Dale, Director of the National Institute for Medical Research of England, a fellow of the Royal College of Physicians, and one of the world's leading authorities on Pharmacology, was the principal speaker at the dedication of the new Merck Research Laboratory, which took place at Rahway, N. J., on April 25th. Other guests of honor were: Mr. Lamont du Pont, President of E. I. du Pont de Nemours & Co., Inc., representing Chemistry and the Chemical Industry; Mr. J. K. Lilly, of Eli Lilly & Co., representing Pharmacy and the Pharmaceutical Industry; Surgeon-General Hugh S. Cumming, of the U. S. Public Health Service, representing Medicine and the Public Health Service; and Governor A. Harry Moore, representing the State of New Jersey. Over three hundred leaders in medicine and chemistry of the country were present at the dedication.

The Merck Research Laboratory, just completed at a cost of $200.000, is considered one of the most modern of its kind in the world.

Dr. Percy Paul Pharr,

Of the class of '27, Medical College of Virginia, recently of Lillybrook, W. Va., has located at Alderson, W. Va.

Dr. Frederick Pilcher, Jr.,

Of the class of '29, University of Virginia, Department of Medicine, recently returned from studying in Vienna, and has just begun a fellowship with the Mayo Foundation, Rochester, Minn.

Dr. W. A. Reese,

Petersburg, Va., was in April re-elected Eminent Commander of the Appomattox Commandery, No. 6, Knights Templar, to serve for the coming year.

Virginia Doctors Visit in Florida.

Dr. and Mrs. S. E. Massey and daughter, Caroline, returned to their home in Amonate, Va., the first of April, after a month's vacation at Miami Beach.

Dr. and Mrs. J. Kennedy Corss, Newport News, Va., have been spending some time at Miami.

Dr. C. B. Bowyer, Stonega, Va., is home again after a pleasant vacation in Florida.

Dr. D. Hunter Marrow and family, after spending the winter at Daytona Beach, have returned to their home in Boydton, Va., for the summer months.

The Annual Report of St. Elizabeth's Hospital,

Richmond, Va., for 1932, has just appeared. It shows 1,190 patients during the year 1932. There were twenty-three deaths among the operative cases, none among the surgical non-operative cases, one among the urological cases, and thirteen among the medical cases, making the total number of deaths thirty-seven and the mortality rate for all deaths 3.10 per cent,

as compared with forty-two deaths in 1931 and a mortality rate of 2.85 per cent. The mortality rate for operative surgical patients for 1932 was 3.34 per cent, as compared with 2.66 per cent for 1931.

Appended to the report and constituting an interesting feature of it is a synopsis of all deaths, including remarks upon the cases and a brief report of the necropsies. Twenty-five necropsies (67.57 per cent-100 per cent of the surgical cases) were done, as compared with seventeen necropsies (40.47 per cent-66.23 per cent of the surgical cases) in 1931.

There were 1,031 anesthesias during 1932, of which there were thirty-six spinal, 440 local, fifty-three straight ether, 257 straight ethylene, 216 ethylene combined with ether, local or avertin, and 225 operations in which avertin was used.

The out-patient department reports the handling of 1,440 cases during 1932, including dressings, examinations and treatments.

There were 806 ultraviolet ray treatments given, 301 basal metabolism examinations, ninety electrocardiograms, and 546 microscopic tissue examinations.

The Virginia Hospital Association,

Meeting jointly with the associations of North and South Carolina, in Charleston, S. C., early in April, elected Dr. W. T. Sanger, of the Medical College of Virginia, Richmond, President of the Virginia organization; Miss Virginia Thacker, Roanoke, Vice-President, and Dr. Lewis E. Jarrett, Richmond, Secretary-Treasurer. The combined organizations had an excellent meeting with an attendance of about three hundred and twenty-five.

The Tri-State Federation will hold its 1934 meeting in North Carolina next Spring.

Officers In Rotary Club.

Dr. A. D. Hutton was recently elected treasurer and Dr. George A. Wright one of the directors of the Rotary Club of Marion, Va.

Mother's Day.

"Make Motherhood Safe for Mothers" is the slogan of the Maternity Center Association for Mother's Day, on May 14th. At least half of the 16,000 annual deaths in maternity are preventable and ought to be prevented, is the claim of the Maternity Center, and so plans have been made from coast to coast to devote the week just preceding Mother's Day to crystallizing public opinion on the vital need of improving maternity care.

Dr. W. L. Varn,

South Hill, Va., was in April elected president of the Rotary Club of that place for the coming year.

The American Public Health Association,

Foremost sanitary organization in the United States, announces its sixty-second annual meeting, to be held in Indianapolis, Ind., October 9-12, 1933.

It was at the meeting of this Association in Indianapolis in 1900 that Dr. Walter Reed read a paper entitled "The Etiology of Yellow Fever—A Preliminary Note," indicating that the mosquito serves as the intermediate host for the parasite of yellow fever. History was being made in the Old German House that day, yet it is reported by some of those present that the epochal report was received with only mild interest. At this year's meeting it is planned to honor the only living participant in the famous Yellow Fever Experiment, Dr. John R. Kissinger, at a special memorial session.

The scientific program will discuss every aspect of modern public health practice, from the viewpoint of the health officer, the laboratory worker, the epidemiologist, the child hygienist, the industrial hygienist, the nurse, the vital statistician, the health educator, the food and nutrition expert, the sanitary engineer. Distinguished scientific pronouncements may be expected from the outstanding personalities in the public health profession who will contribute to the program.

The American Public Health Association, 450 Seventh Avenue, New York City, will be glad to send more complete information about its Indianapolis meeting, to anyone interested.

American Congress of Radiology.

The Radiological Society of North America, the American Roentgen-Ray Society, the American College of Radiology, and the American Radium Society appointed representatives to formulate plans for an American Congress of Radiology, to be held in Chicago, September 25-30, 1933, at the time when it is expected that the Century of Progress Exposition will be at its best. Dr. Henry K. Pancoast, of Philadelphia, is president of the Congress. The scientific sessions and scientific and commercial exhibits will be at the Palmer House. This promises to be a gath-

ering of unusual interest. Further information in regard to the Congress may be obtained from permanent headquarters and business office of the Executive Council and Administration, at 2561 North Clark Street, Chicago.

For Sale—

New post-cautery complete with one knife. $25.50 net, cash. Address A. B. C., care the VIRGINIA MEDICAL MONTHLY, 1200 East Clay Street, Richmond, Va. (*Adv.*)

Obituary Record

Dr. John Hansford Thomas,

Prominent physician of Augusta County, Va., died at his home in Greenville, February 1st, death being due to cardio-vascular-renal disease. He was sixty years of age and graduated from the former Baltimore Medical College in 1896. Dr. Thomas was an active member of his local society and had been a member of the Medical Society of Virginia since 1910. His wife and two children survive him.

A physician, who knew Dr. Thomas intimately, paid him a wonderful tribute, saying in part: "Dr. Thomas was in many respects the most remarkable physician I have ever known. I have never known a doctor who held the love and esteem of his clientele to a greater degree than did Dr. Thomas. I have never seen such devotion, and he had a remarkable personality, too."

Dr. George W. McAllister,

Hampton, Va., died March 30th, from toxemia, after having been in ill health for about a year. He was fifty-six years of age and a native of Hanover County, Virginia. Dr. McAllister graduated from the former University College of Medicine, Richmond, Va., in 1899. He was a Fellow of the American College of Surgeons, President of his County Medical Society, and Secretary of the Board of Directors of the Dixie Hospital. Dr. McAllister had been a member of the Medical Society of Virginia for thirty-three years. His wife survives him.

Dr. Nathaniel Albert Nicholson,

Back Bay, Va., died April 3rd, at a hospital in Norfolk, Va. Death was the result of a brain tumor. He was a native of North Carolina and was fifty-three years of age. Dr. Nicholson graduated from the former University College of Medicine, Richmond, Va., in 1901. He had practiced at Back Bay since his graduation and joined the Medical Society of Virginia the same year. He was also an active member of the Seaboard Medical Association of Virginia and North Carolina. His wife survives him.

Dr. Harry Tilden Hopewell,

Strasburg, Va., died March 18th, as a result of paralysis. He had been in ill health for the past ten years. Dr. Hopewell was fifty-six years of age and graduated from the former Maryland Medical College in 1903. He had been a member of the Medical Society of Virginia for twenty-five years. Dr. Hopewell was very active in civic work. He was a Mason and also connected with several other fraternal orders. His wife and three children survive him.

Dr. B. Arthur Middleton,

Prominent physician of the Northern Neck section, died at his home in Emmerton, Va., April 3rd. He was seventy-seven years of age and graduated from the College of Physicians and Surgeons, Baltimore, Md., in 1877. Dr. Middleton had been a member of the Medical Society of Virginia for twenty-eight years. A daughter survives him.

Dr. Frederick Hutchison,

Aldie, Va., died February 20th, of cerebral hemorrhage. He was eighty years of age and graduated from the former Washington University School of Medicine, Baltimore, in 1876.

Dr. Charles Lawrence Bradshaw,

Crownsville, Md., died February 22nd, of erysipelas. He was forty-four years of age and graduated from the Medical College of Virginia in 1912. Dr. Bradshaw had been a member of the Medical Society of Virginia for twelve years. He was a member of the Staff of the Crownsville State Hospital.

Resolutions on Death of Dr. James McTeer Miller.

The Southwestern Virginia Medical Society, recently in session at Pulaski, passed the following resolutions on the death of Dr. Miller:

WHEREAS, God in His Infinite Wisdom has seen fit to remove from our midst our beloved friend and past president, Dr. James M. Miller, of Wytheville, on Sunday morning, March 12, 1933, therefore BE IT RESOLVED:

First. That the Southwestern Virginia Medical Society has lost one of its strong men, always firm in his convictions yet courteous and beloved, whose going creates a void that will not easily be filled.

Second. That Southwestern Virginia has lost one of its outstanding physicians and citizens who gave unstintingly of himself that his fellowman might not suffer. Dr. Miller exemplified all of those sterling qualities of the true man and good physician.

Third. That a copy of these resolutions be spread on the minutes of our Society, a copy be sent to the VIRGINIA MEDICAL MONTHLY, and a copy be sent to his family.

Signed:

C. F. GRAHAM, Wytheville, Virginia.
Z. V. SHERRILL, Marion, Virginia.
E. G. GILL, Roanoke, Virginia.

Resolutions on Death of Dr. John Hack Ayres.

The Accomack Medical Society, at its regular meeting, on April 4, 1933, unanimously adopted the following resolutions:

WHEREAS, on December 8, 1932, our fellow member and former president, Dr. John Hack Ayres, passed to his eternal rest:

BE IT RESOLVED, That the Accomack Medical Society feels keenly the loss of one of their most valued members. His worth is attested by the host of personal followers who mourn the passing of their beloved physician. His eminence in the profession is shown by his appointment as a member of the State Board of Medical Examiners on which he served for many years until failing health obliged him to resign. He was a public spirited citizen of wide interests outside his profession.

He was a notable example of the conscientious and ethical physician He was ever considerate of others, particularly of the younger physicians with whom he came in contact. To an unusual degree he enjoyed the affection and esteem of his colleagues. His companionship and counsel will be sadly missed.

BE IT FURTHER RESOLVED, That these resolutions be published in the VIRGINIA MEDICAL MONTHLY and that a copy be sent to the family of Dr. Ayres.

J. L. DECORMIS,
IRA HURST,
J. H. HIDEN,
Committee.

Resolutions on Death of Dr. Martin D. Delaney.

The Staff of the Alexandria (Va.) Hospital, adopted the following resolutions on the death of Dr. Delaney, at a recent meeting:

WHEREAS, the Master has called from our midst Dr. Martin D. Delaney, the senior member of the medical staff of the Alexandria Hospital,

THEREFORE BE IT RESOLVED, That the Alexandria Hospital has lost one of its most loyal friends and one of its most ardent workers; and,

BE IT FURTHER RESOLVED, That we, the medical staff in called meeting assembled, do hereby record our sincere sorrow at his removal at the zenith of a career of so marked leadership and ability; and,

BE IT FURTHER RESOLVED, That a copy of these resolutions be sent to the family of Dr. Delaney, and published in the *Alexandria Gazette*, and in the VIRGINIA MEDICAL MONTHLY.

LLEWELLYN POWELL,
HUGH MCGUIRE,
S. B. MOORE,
Committee.

Resolutions on Death of Dr. James H. A. Lofland.

The following resolutions were unanimously adopted at a regular meeting of the Accomack Medical Society, held April 4, 1933:

Dr. James H. A. Lofland, of Melfa, Va., one of Accomack County's oldest physicians passed away at his home February 29, 1932, aged 82 years. Dr. Lofland's early education was in the schools on the Shore He afterward attended schools in Baltimore, Md., and received his M. D. from the College of Physicians and Surgeons in 1875. Dr. Lofland had been in poor health for several years but possessed a remarkable mentality and always endeavored to keep abreast of the times. Dr. Lofland was a member of the Accomack County Medical Society and had been since its organization The Accomack County Medical Society passed the following resolutions:

WHEREAS, Dr. James H. A. Lofland was, on February 29, 1932, removed from our midst by death, and

WHEREAS, he had been a member of our profession and a member of this Society

BE IT RESOLVED, That in his death the medical profession has suffered a grievous loss, and the people whom he served a wise counselor, a sympathetic friend and a faithful attendent; that our sympathy be extended to his family and clientele; that a copy of this be recorded in the minutes of the Accomack County Medical Society, a copy sent to his family and a copy to the VIRGINIA MEDICAL MONTHLY.

J. L. DECORMIS,
IRA HURST,
J. H. HIDEN,
Committee.

Dr. Eric Alonzo Abernethy,

Chapel Hill, N. C., died suddenly March 21st. He was fifty-six years of age and graduated from the former University College of Medicine, in Richmond, Va., in 1901. He served in the medical corps of the Army during the World War.

Dr. John Rollin Shultz,

Charleston, W. Va., died February 6th. He was forty-two years of age and a graduate of the Medical College of Virginia in 1918.

Col. Charles R. Keiley,

For nearly fourteen years connected with the Virginia State Health Department in an administrative capacity and as director of rural health work, died at his home in Richmond, Va., April 15th, after an illness of several weeks.